DOCUMENT RESUME

ED 097 954 PS 007 157

AUTHOR	Kirchner, Elizabeth P.; Vondracek, Sarah I.
TITLE	An Assessment Inventory for the Day Care Child. Volume I: Background, Development and Sample. Center for Human Services Development, Report No. 14.
INSTITUTION	Pennsylvania State Univ., University Park. Coll. of Human Development.
SPONS AGENCY	Pennsylvania State Dept. of Public Welfare, Harrisburg.
REPORT NO	PSU-CHSD-R-14
PUB DATE	Jun 72
NOTE	243p.; For other reports in this series, see PS 007 154-PS 007 164
EDRS PRICE	MF-$0.75 HC-$11.40 PLUS POSTAGE
DESCRIPTORS	*Childhood Needs; Cognitive Development; *Day Care Services; *Educational Assessment; Emotional Development; Evaluation Methods; Individual Development; Language Development; *Measurement Techniques; Motor Development; Preschool Evaluation; *Preschool Tests; Social Development; Visual Discrimination

ABSTRACT

This is the first of a two volume report on a Day Care Inventory designed to assess the day care child's understanding of his physical, social, and personal world. Theoretical and research literature on the development of the child, the available assessment techniques, and the results of an initial survey regarding day care objectives were the three major inputs used to determine decisions regarding what aspects of the child's cognitive, social, and emotional development were to be assessed. The present volume discusses the background and development of the inventory and describes the assessment staff and the sample of Pennsylvania day care children utilized in the field evaluation of the Inventory. Central to the report is a detailed discussion of the theoretical and research background for each of the 15 activities or components which were used in the Inventory for a direct assessment of each child. (CS)

BEST COPY AVAILABLE

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED 097954

INSTITUTE FOR THE STUDY OF HUMAN DEVELOPMENT

CENTER FOR HUMAN SERVICES DEVELOPMENT

AN ASSESSMENT INVENTORY FOR THE DAY CARE CHILD
VOLUME I — BACKGROUND, DEVELOPMENT AND SAMPLE

BY ELIZABETH P. KIRCHNER AND SARAH I. VONDRACEK

JUNE 1972

CHSD Report No. 14

PS 007157

COLLEGE OF HUMAN DEVELOPMENT
PENNSYLVANIA STATE UNIVERSITY
UNIVERSITY PARK, PA. 16802

ED 092951

AN ASSESSMENT INVENTORY FOR THE DAY CARE CHILD

Volume I

BACKGROUND, DEVELOPMENT AND SAMPLE

PS 007157

Center for Human Services Development

College of Human Development

The Pennsylvania State University

University Park, Pa. 16802

AN ASSESSMENT INVENTORY FOR THE DAY CARE CHILD[1]

Volume I

BACKGROUND, DEVELOPMENT AND SAMPLE

Elizabeth P. Kirchner

Sarah I. Vondracek

The Pennsylvania State University

ABSTRACT

This is the first of a two volume report on an inventory designed to assess the day care child's understanding of his physical, social, and personal world. The present volume discusses the background and development of the inventory and describes the assessment staff and the sample of Pennsylvania day care children utilized in the field evaluation of the inventory.

---

[1]This report was prepared under contract with the Pennsylvania Department of Public Welfare. The opinions and recommendations expressed are those of the authors and do not necessarily reflect the official position of the sponsoring agency.

PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY

Pa. State Univ.

TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER.

Copyright © 1972

The Pennsylvania State University

Center for Human Services Development

ACKNOWLEDGEMENTS

This report is based upon the contributions and efforts of many individuals at day care centers throughout Pennsylvania and of the staff of the Pennsylvania Day Care Study.

Our primary gratitude is expressed to the teaching staff and administrators of the day care centers in which we worked. Their cooperation made this study possible, and their facilitation and many acts of personal kindness made it pleasant and rewarding.

To Eileen Hahn, senior secretary of the Pennsylvania Day Care Study, we extend our appreciation for her remarkable blend of professional skills and personal qualities, which have made the difference during those ups and downs to which any research effort is heir.

Our field psychometrists, members of the child assessment group for a relatively brief period of training and data gathering, were competent, resourceful, and hard working professionals of whom we are most proud and to whom we extend our sincere thanks. They are: Valeria A. Ford, Carol J. Kronenwetter, Francine A. Lastowski, Carol A. Rautenstrauch, Peter F. Wagner, Michael Wexler, and Robert Wilson.

Various members of the Pennsylvania Day Care Study staff have also contributed greatly to the work of the child assessment group. Patricia Ridley, Robert F. Marcus and Judith M. Hendrickson aided in the early development and pilot work. Robert F. Marcus and Judith M. Hendrickson, together with Melanie Manko, also contributed background material to the present report, specifically that related to the assessment of gross motor abilities, visual discrimination, and language.

The data of this study required extensive scoring, coding, and tabulating. We wish to thank Gary Bierly, Ednetta Ellis, Melanie Manko, Stanley Parker, and Linda Zolyak, who undertook these efforts with competence, efficiency, and interest. We also extend our appreciation to Nancy C. Daubert, computer programmer, and to Sandra Stocker, key-punch operator.

Our special thanks go to our project head, Donald L. Peters, both for his conceptual aid and for his support and encouragement of our work.

Our study has thus involved the competencies and interdependence of a great many persons. It is a pleasure to have this opportunity to thank them for their splendid efforts and to express the hope and intent that our work together will benefit most the focus of our mutual interest--the day care child.

Table of Contents

Topic	Page
ACKNOWLEDGEMENTS	
CHAPTER	
1 Introduction	1
Development	2
Components	3
Direct Assessment	3
Rating Scales	4
Field Assessment	5
2 Background and Development	7
Creativity Measures	12
Dog and Bone	14
Unusual Uses	19
Reliability	21
Validity	22
Norms	24
The Many-Splendored Cube	29
Review of Related Literature	31
Pilot Results	37
Assessment of Language Development	38
Picture Naming	39
Development of Picture Naming as a Measure	40
Picture Naming in the Day Care Inventory	43
Picture Interpretation	43
Picture Interpretation Measures and Intelligence Testing	44
Picture Interpretation Measures as Projective Instruments	45
Picture Interpretation and Language Development	46
Picture Interpretation as a Measure in the Day Care Inventory	48
Gross Motor Skills	49
The Relationship Between Motor Development and Personality and Social Development	50
Research on Gross Motor Functioning	52
Measurement of Gross Motor Functioning	54
Rating Scales	55
Direct Assessment	56
Assessment in the Day Care Inventory	57
Visual Discrimination	59
Development of Visual Discrimination	59
Training in Visual Discrimination	62
The Importance of Visual Discrimination in Development	63
Measurement of Visual Discrimination in the Day Care Inventory	64

Topic | Page

Social Roles 65
The Occupational Choice Question 66
Review of Literature on the Occupational Choice of Young Children 66
The Social Roles Questions 70
Review of Literature on Social Perceptions of Young Children 72
Pilot Work 75
Social Competence Questions 75
The Self-Help Question 79
Normative Studies 81
Pilot Work 83
The Social Comprehension Questions 86
Review of Related Literature 87
Pilot Work 90
Self-Concept Measures 91
Review of Techniques for Self-Concept Assessment During Early and Middle Childhood 93
Adjective Check Lists and Other Self-Rating Methods 97
Limitations of Adjective Check Lists and Other Self-Rating Methods with Early Childhood Populations 99
Projective Techniques 101
Limitations of Projective Techniques with Early Childhood Populations 104
Conclusions 105
Who Likes You? 105
Good Person and Bad Person Measures 108
Body Parts 113
Wish 115
Review of Related Literature 116
Pilot Work 126
Camera Game 128
Review of Related Literature 129
Pilot Work 130
Rating Scales 136
Child Ratings 136
Examiner Observations 139

3 Field Assessment Staff 142
Selection 142
Description 143
Training 143
Assignment to Geographic Regions 145

Topic Page

4 Selection and Characteristics of the Sample 146
Selection of the Sample 147
Selection of Regions and Day Care Centers 147
Selection of Children Within Centers 148
Characteristics of the Sample 150
Sex and Age 150
Geographic Area and Ethnicity 151
Day Care Center Setting 155
Family 158

APPENDICES
A Identifying Information Form 165
B Instructions and Record Forms for Direct Assessment Components 167
C Illustrations of Direct Assessment Materials Presented to the Child 198
D Rating Scales 205
E Personnel Data and Application Form 211
F Examiner Instructions to Accompany The Day Care Inventory Materials 214
G Parental Permission Slip 219

BIBLIOGRAPHY 221

TABLES

Table 1 Pretest and Posttest Means and Standard Deviations of the Head Start Sample In Frequency, Originality and Category Change on Unusual Uses (Peters and Stein, 1966) 25

Table 2 Means and Standard Deviations of the Children in the Head Start Sample Who Entered Kindergarten the following Fall and Control Group 1 in Frequency, Originality and Category Change on Unusual Uses (Peters and Stein, 1966) 25

Table 3 Means and Standard Deviations for the Children in the Head Start Sample Who Entered Kindergarten the Following Fall and Control Group 2 in the Frequency, Originality, and Category Change of Unusual Uses (Peters and Stein, 1966) 26

Table 4 Pretest Means and Standard Deviations of the Subscores and the Total Scores of Unusual Uses for the Montessori and Penn State Samples (Gish, 1971) 27

Topic		Page
Table 5	Posttest Means and Standard Deviations of the Subscores and the Total Scores of Unusual Uses for the Montessori and Penn State Samples (Gish, 1971)	28
Table 6	Results of Baldwin and Stecher's Picture Vocabulary Task (1924)	40
Table 7	Average Vocabulary Size of Smith's (1926) Subjects (Condensed)	41
Table 8	Scoring for the Binet Picture Vocabulary Test: Number of Correct Responses Required to Pass the Test	42
Table 9	Median Age for Gross Motor Activities (Gutteridge, 1939)	53
Table 10	Average Age at Which a Given Percent of Population Passes Items (DDST, 1970, Appendix B2)	58
Table 11	Total Sample Norms - DDST: Age When Given Percent of Population Passes Items	83
Table 12	Males - Females Norms - DDST: Age When Given Percent of Population Passes Items	84
Table 13	Parent Occupational Group Norms - DDST: Personal Social -- Age When Given Percent of Population Passes Items	85
Table 14	Summary of Selected Research Findings on Self-Concept in Early and Middle Childhood Samples	94
Table 15	Mood Score Frequencies for Six Mood States	131
Table 16	Percentage of Children Classified by Age and Sex	151
Table 17	Percentage of Children in Total Sample Classified by Geographic and Ethnic Characteristics	152
Table 18	Racial Composition of Child-Psychometrist Dyads	154
Table 19	Number of Months the Child Had Attended the Day Care Center	156
Table 20	Enrollment Size of Classroom Attended by Children in the Sample	156

Topic		Page
Table 21	Age and Ethnic Composition of Classroom	157
Table 22	Adults in the Child's Home	160
Table 23	Parent Occupational Status	161
Table 24	Occupational Classification of Employed Parents	162
Table 25	Number of Brothers and Sisters	163
Table 26	Position of Child Among Siblings	164

AN ASSESSMENT INVENTORY FOR THE DAY CARE CHILD

Volume I

BACKGROUND, DEVELOPMENT AND SAMPLE

Elizabeth P. Kirchner

Sarah I. Vondracek

The Pennsylvania State University

CHAPTER 1

INTRODUCTION

Proponents and opponents of day care base their positions in part upon their "answers" to the question: What are the effects of day care on children? The question is misleading, however, in its simplicity. A more appropriate question would be: How and in what ways do day care experiences (settings, teachers, curricula, etc.) affect the immediate and future development (cognitive, affective, social, etc.) of different children (age, sex, background, etc.)? The question is an immense one, and it is apparent that no one research effort can answer it. Our understanding of the complex web of interactions of the child, home, and day care milieu can gradually increase only by many research efforts and contributions.

The child assessment group of the Pennsylvania Day Care Study endeavored during the past year to develop a means whereby some answers to the complex question of the relationship between child development and day care could be sought. Our major effort was aimed at providing

a set of measures that would assay a child's development and thus provide a means for evaluating the contribution that various day care factors make to it. We selected the ages of 3 to 6 years as the appropriate age group for study, as this range represents the largest number of children in day care at the present time. We developed some measures where none were available, modified others where we found it appropriate to do so, and adopted intact still others. We have called the total group of measures the Day Care Inventory.

Development

Our intent in the development of the Day Care Inventory was to sample a child's understanding -- his understanding of his physical world, social world, and personal world. First, a pilot attempt to delineate the behavioral goals of day care was undertaken by another group of the Pennsylvania Day Care Study staff. [A full account of that survey is available as a report of the Pennsylvania Day Care Study (Peters, Hendrickson, Marcus, & Ridley, 1972).] Briefly, groups of day care operators and experts in child development and early childhood education were queried as to important objectives for day care children. The results of this initial survey were utilized in our decisions regarding which subareas would be assessed within the physical, social, and personal domains.

Our selections for the Inventory were influenced by many factors. There were three major guides: theoretical considerations, the assessment procedures available, and our belief that assessment is most meaningful when it is undertaken vis-à-vis specified goals and

objectives. Statistical reliability and validity were also of prime concern since measures need to be dependable and should measure what they say they measure. In addition our strategies of component selection and administration reflect our intent to assure the child's best efforts. Thus we wanted our measures to be appealing to both the child and the psychometrist and, therefore, designed administration procedures to create a highly reinforcing and enjoyable climate.

Components

The Inventory consists of two major parts: direct assessment activities and ratings by the teacher and the examiner. Identifying data (face sheet information) such as age, sex, geographic area of residence, race, family characteristics, and day care class size and composition are obtained on an accompanying form (see Appendix A).

Research background and the development of all the components of the Inventory are presented in Chapter 2.

Direct Assessment

Other things being equal, we preferred direct assessment, involving the child himself in a standardized situation, to indirect techniques of assessment, such as rating scales, which depend upon the judgments of others and lack standardized bases of assessment. The Inventory contains 15 activities or question series for direct assessment of the child's understanding of his physical, social, and personal world. They are presented to a child by an experienced psychometrist in an individual session of 35-40 minutes. These activities and question

series are: 1) Dog & Bone, 2) Social Roles, 3) Body Parts, 4) Who Likes You?, 5) Picture Naming, 6) Good Person, 7) Gross Motor Skills, 8) Social Competence, 9) The Many Splendored Cube, 10) Picture Interpretation, 11) Bad Person, 12) Visual Discrimination, 13) Camera Game, 14) Unusual Uses, and 15) Wish. The activities and question series of the direct assessment section of the Day Care Inventory appear in Appendix B, along with the instructions for their administration. Illustrations of the assessment materials presented to the child are found in Appendix C.

Rating Scales

Two rating scales were developed as part of the Day Care Inventory: Child Ratings and Examiner Observations (see Appendix D). Both were primarily adopted or modified from previously developed rating scales, although several parts were designed particularly for the purposes of this study.

Many aspects of a child's development simply cannot be assessed by brief direct-assessment techniques. Such behaviors as sharing toys with others, self-reliance in dressing, and cooperation with a teacher must be observed over a period of time in the day care environment. Observation of the child via time sampling methods is a frequently adopted research strategy to assess such behaviors. We recognized that the time and expense involved in observational methods made consideration of their use unrealistic at this time for gathering data on the individual child. Rating scales, however, seemed practical and possible. Since ratings by the person most familiar with the day care child (usually the teacher) capitalize on her observation of the child over the time she has known him, the Child Ratings instrument was developed for the day care child's

teacher to complete. It is recognized, of course, that precision of measurement and judgment becomes vitiated in rating scales by problems in interpretation of wording, by biases of the raters, by "halo effects," and so forth.

The rating scale Examiner Observations was utilized to assess the child's overall approach to the examiner, the assessment situation, and the tasks presented to him.

Field Assessment

Initial pilot work with the Inventory components took place hand-in-hand with continuing refinement of the various items. In March, 1972, actual field use of the Inventory was undertaken. Not every part of the Inventory was in the form desired for field assessment, but the majority of the items seemed ready. The calendar of the study also made it appear wiser to go to the field then in order to have an initial picture before the end of the year rather than postpone data collection until much later when refinement of certain Inventory items would be more advanced.

A staff of psychometrists already experienced in work with young children was employed for the field assessment period at the end of March. Their selection and specific training in the administration of the Day Care Inventory is described in Chapter 3.

The Inventory was administered to 290 children aged 3 to 6 years from day care centers in five geographic regions of Pennsylvania. These regions were: Philadelphia and surrounding area, Pittsburgh and surrounding area, the counties of Northumberland and Schuylkill, the

counties of Erie and Warren, and Bradford County. Chapter 4 presents a description of the sample.

CHAPTER 2

BACKGROUND AND DEVELOPMENT

This chapter discusses the theoretical and research background for each component of the Day Care Inventory. The material is presented briefly in some cases, notably in cases where theory and research is either scant or well-developed elsewhere, and in great detail in others, particularly where we feel that either theoretical issues or preschool assessment efforts remain challenging.

The Day Care Inventory was designed to assess aspects of a child's understanding of his physical world, social world, and personal world. These areas roughly correspond to the childs' cognitive, social, and emotional development. Within these areas, our decisions regarding what aspects of development should be assessed were a product of three major inputs: the theoretical and research literature on the developing child, the available assessment techniques, and the results of an initial survey regarding day care objectives.

There were, of course, many additional guidelines and biases in the development of the Day Care Inventory. Prominent considerations were the following:

1. Measures should reflect a long-range orientation for the child. We are concerned with his current well-being and effective functioning. We are concerned with his preparation for his next step: the world of school and peers. And we are concerned with his adult functioning.
2. Modified and newly developed measures must seem likely to attain reliability and validity, while adopted measures must

already possess them. Our instruments should measure with acceptable accuracy (reliability) rather than caprice. They should measure what we say they measure and not something else (one aspect of validity). Validity of measurement can be particularly tricky in the preschool years, and much current criticism of preschool assessment has been directed toward it. We need to be sure, for example, that a low score on a test of visual acuity is not actually due to the child's inability to understand directions or to his fear of a strange examiner.

3. Measures must be capable of assessing a child's development and progress throughout his day care experience and/or at any point in time. The most useful measures are those which are appropriate throughout the developmental range studied and those which are sensitive to changes in the child's development and progress.

4. Measures must be brief. Total assessment time with a child should be less than 45 minutes.

5. Nonverbal measures are to be preferred to verbal measures. The fewer words the better.

6. Traditional sorts of yes-no or multiple choice items, frequently used with older children, must be avoided. Questions requiring a preschooler to choose his response from alternatives are confusing or meaningless to the child. They lead him to form response sets and choose all last responses or all yes or no responses.

7. Measures must be easy to administer and easy for a person familiar with other preschool assessment techniques to learn in a relatively short training period.

8. Measures must involve no expensive materials. Assessment equipment must be relatively easy to duplicate from readily available supplies. Equipment must be readily transportable.

9. Measures must involve tasks and questions that are appealing to children. Without a child's best cooperation, there is no "good" measurement. "Good" measurement assumes, first of all, a motivated, cooperative child.

10. Measures must involve tasks and questions that are appealing to examiners. A child's cooperation with the examiner is a two-way street. A bored examiner is a hazard.

The reader no doubt realizes that the simultaneous attainment of all these goals is not possible and that the necessity of compromise among them is implied by the mutually exclusive nature of some. Reliability, for example, can usually be enhanced by making the assessment of a variable more lengthy, while a child's cooperation cannot. The Inventory thus represents realistic compromises among desired alternatives.

The last two of the ten considerations used to guide the development of the Day Care Inventory reflect in part our strong feelings regarding the climate in which assessment takes place. An inventory such as ours has no need for a grim confrontation between the examiner and the "testee" or "subject." Indeed it is unlikely that any assess-

ment situation is benefited by such a stance, although traditions in the experimental and testing fields have appeared to be leading to such a nadir (see Jourard, 1968). We believe that assuring the best cooperation and best efforts of a child is not a mere cliché but is a realistic goal approachable by specific techniques. Prominent among the strategies we adopted was the one previously mentioned, i.e., that of selecting measures which are brief and appealing to both children and examiners. In addition, we adopted two procedures which have been utilized by Ali and Costello (1971) to control factors adversely affecting the test performance of preschool disadvantaged children.

The first of these involved the presentation order of items within an inventory component. When a component involved items of varying degrees of difficulty, items were arranged for administration in randomized order rather than in the traditional order of increasing difficulty. As pointed out by Ali and Costello (1971), disadvantaged children in particular frequently become discouraged once they fail or are unsure of a short sequence of items. The discouragement of the child is often "picked up" by the examiner who then assumes the child will not perform well on succeeding items and "expects" the child quickly to reach a series of completely failed or unattempted items. Both Ali and Costello (1971) and MacKinnon (1962) point out the extent to which low expectancy on the part of the examiner and discouragement on the part of the child lower the probability of a child's optimal functioning.

The second procedure influenced by the Ali and Costello (1971) study was the attempt to provide high and standardized reinforcement for the children. Ali and Costello (1971) summarized that children are very

sensitive to social and interpersonal reinforcers, examiners are effective reinforcing agents, and highly reinforcing examiners tend to have a positive influence on the test performances of preschool children. Thus, reinforcing statements such as "Good!," "I like your ideas on these," and "You're doing a fine job," were placed throughout the Inventory. The statements utilized and their placement throughout the Inventory reflected our intent to reinforce the child's participation without regard for the "goodness" or "correctness" of his responses. It should be pointed out that this procedure reverses the traditional practice of withholding any evaluative comments until the completion of a subtest or an entire battery.

Additionally, our philosophy regarding reinforcement also influenced both the selection and training of psychometrists. We were alert during the selection process for psychometrists for those possessing personal qualities which make a person a "high reinforcer" - direct eye contact, interest in what others are saying, frequency of smiling, frequency of positive comments, etc. During their training much of our effort was directed toward assuring a high, standardized level of reinforcement for all children across all examiners. In the interest of naturalness of expression, however, the psychometrists were permitted to alter the phraseology of our standard reinforcing remarks if our phrases seemed inappropriately long or formal in a given situation.

A further consideration involved the psychometrist's role in the Day Care Inventory. The psychometrist was restricted solely to the administration of the measures and had no responsibilities related to the scoring or categorizing of responses. Freed from the need to attend to

the "correctness" or category of a child's response, the psychometrist was able to devote full attention to facilitating a child's response and was able to devote all his interest to the response the child gave.

Finally, the order of administration of the various Inventory components was given considerable attention. Our order of presentation attempted to insure optimum interest and response on the part of the child. Components were arranged so that both the type of material (verbal questions, pictorial stimuli, appealing objects) and the type of required response (manipulation of objects, verbal responses, bodily activity) were varied. However, in the discussion of the background and development of the Inventory which follows, the components are grouped according to the particular domain with which they are associated, that of the physical, social or personal world of the child.

Before continuing with the presentation of the components of the Inventory, we wish to stress our belief that care in selecting specific techniques to assure a child's best performance is superior to vague exhortations to examiners to "establish rapport," "gain the cooperation of the child," and so forth. We recognize that in many cases we probably have merely systematized some practices which skillful clinicians have long employed.

Creativity Measures

Creativity has been regarded as an attribute of considerable importance since ancient times. However, despite long-standing interest in creative behavior, little was done in the way of systematic investigation

until the early 1950's. This lack of scientific inquiry was due in large part to pervasive interest in intelligence testing and to the notion that the one concept of intelligence embodied in the IQ metric was sufficient to account for all cognitive functioning (Vondracek, 1965). Guilford's (1956) publication of his structure of intellect model revolutionized contemporary conceptualizations of cognitive behavior and provided much of the impetus for subsequent research.

Although current definitions of creativity vary, there is sufficient commonality to permit construction of a generic definition. Such a definition has been attempted by Stein (1968):

> Creativity is a process with overlapping phases that takes time...it results in a novel product that must be "adaptive"... it occurs within a social context [pp. 900-901].

Measurement of the creativity of day care children appeared important for a number of reasons. In the first place, creativity, like other behaviors, is a function of interactions between the individual and his environment (Stein, 1968). Presumably, every child is born with some creative potential, but individual differences in degree exist (Smith, 1966). Whether or not the child realizes his creative potential will depend largely on his environment (Smith, 1966). Smith (1966) has summarized the environmental characteristics thought to be important for creative behavior. These characteristics include (a) stimulation, freedom from distraction, and a climate conducive to unbiased inquiry, (b) tolerance for nonconformity, (c) permissiveness of psychological safety and freedom, and (d) materials for the satisfaction of primary needs.

One of the most potent forces in a child's environment is the school or in the case of the day care child, the day care milieu. Thus, it is germane to inquire whether the day care environment discourages creativity, has no effect on creativity, or facilitates creativity. We recognized that the ideal approach to the issue of the impact of day care on creativity would be a longitudinal one, or one involving pre and post measures. However, at this stage of our research such an approach was not possible. Rather than ignore creativity altogether, we elected to examine day care children's performances on two measures of creativity and to compare their performances with norms obtained for other preschool samples. A description of the instruments selected follows.

Dog and Bone

Effective problem solving need not denote achievement of conventional answers to conventional problems but rather should encompass behaviors useful in generating both conventional and creative solutions. The Dog and Bone instrument was designed by Banta (1970) to measure an aspect of "self-regulating behavior relevant to good problem-solving strategies [p. 424]." It initially appeared in Banta's Cincinnati Autonomy Test Battery (CATB). The autonomy variable measured by Dog and Bone is innovative behavior, which is defined by Banta as the "tendency to generate alternative solutions to problems [p. 426]."

Dog and Bone was selected for inclusion in the Day Care Inventory for a number of reasons. First, as Guilford, Merrifield, and Cox (1961) have proposed, divergent thinking is a construct embodying many aspects

and therefore is best approached via multiple measures. Second, initial reports indicated that Dog and Bone possesses both high interscorer and high test-retest reliability (Banta, 1970). However, perhaps the most important factor in the selection of Dog and Bone was its lack of reliance on verbal skills and its assessment of creativity by sensorimotor methods. A number of contemporary theoreticians (e.g., Stein, 1968) have decried the emphasis on verbal modes in the measurement of creative behavior. Dog and Bone thus represented a much needed and novel approach to the assessment of creativity and, at the same time, was especially appropriate for preschoolers. Banta (1970) even goes so far as to assert that innovative behavior must be assessed by sensorimotor methods in this age group.

Evidence for the reliability of Dog and Bone is to date confined to that reported by Banta in 1970. Three types of reliability information are given: (a) test-retest reliabilities for 1- and 2-month intervals, (b) internal consistency coefficients, and (c) inter-rater correlations. Subjects for the reliability studies included children between the ages of 3 and 6 years, primarily from black lower-class areas of Cincinnati. A test-retest coefficient of .73 was obtained for a 1-month interval for a sample of 33 children. A test-retest coefficient of .82 was obtained for a 2-month interval with a sample of 32 children. Both coefficients were significant at the .01 level. Coefficients of internal consistency for Dog and Bone were also high. Banta obtained a coefficient of internal consistency of .76 for one sample of 33 children and a coefficient of .94 for another sample of 48 children. These coefficients were also significant at the .01 level. Finally, inter-rater reliability, based upon a comparison of the scores of two independent raters for 42 records, was found to be .99.

Banta also reported coefficients expressing the relation between Dog and Bone and other CATB subtests. Two studies of interrelations among CATB variables were conducted, one in 1966 and one in 1967. Only results from the latter study are reported here since both investigations yielded essentially the same findings (Banta, 1970). The subjects included 84 black children between the ages of 3 and 6 years from a black community of low socioeconomic status. Dog and Bone was found to be significantly related to three CATB tests. In brief, performance on Dog and Bone was significantly related to performance on intentional learning ($r = .33$) and impulse control ($r = .23$). Banta interpreted these findings as reflective of a verbal comprehension component common to all three measures. Dog and Bone also correlated significantly with the social competence scale of the CATB ($r = .26$). This relation was interpreted as providing support for Wallach and Kogan's (1965) contention that the social psychological milieu of test situations is pertinent to the production of creative responses.

Correlation coefficients for Dog and Bone and other CATB subtests, including the two curiosity measures, were not significant. These results are seen by Banta as indicative of the fact that Dog and Bone assesses an ability specific to that measure and one not measured by other CATB subtests. Since no other measures of innovative behavior were included in the CATB, convergent validity (i.e., the relation to other measures purporting to assess the same variable) could not be evaluated.

Banta (1970) has also examined the relationship between performance on Dog and Bone and performance on Form L-M of the Stanford Binet Scale (Terman & Merrill, 1960). Seventy-six of the subjects used in the 1967

intercorrelations study received the Binet Form L-M. The correlation between innovative behavior and the Stanford Binet scores was .31, significant at beyond the .01 level. In interpreting this finding, Banta observed that the variables of impulse control, social competence and intentional learning were also found to be significantly related to IQ performance. He goes on to argue that, since Dog and Bone correlated significantly with these three variables, it should have some variance in common with IQ performance.

The administration of the Dog and Bone instrument proceeds in the following way: The subject is seated before a board to which four red and white "houses" have been attached. The examiner points to the houses and tells the child, "These are houses." Next, the examiner shows the child a toy dog and asks him to identify it. If the child is unable to identify the dog, the examiner identifies it for him and places it on the board in front of the subject. The examiner then produces the "doggie's bone," identifies it for the child, and says, "The doggie likes to chew his bone." The bone is then placed directly opposite the dog in front of the examiner. Finally, the examiner demonstrates two routes the dog can take to get to the bone. The routes are traced by the examiner with his finger, while he makes the following verbalizations:

> One way the dog can get to his bone is to come up THIS way. Another way he can go is AROUND THIS WAY.

On completion of the demonstration, the examiner tells the subject to "take the doggie and find another way for him to get his bone." The examiner draws the route selected by the child on the scoring sheet while the child is responding. At the end of the trial the examiner says, "Now find another

way for him to get to his bone." This procedure is repeated for each subsequent trial, and each subject receives ten trials.

The materials for Dog and Bone were constructed for our purposes in accord with specifications provided by Banta (personal communication 1972). An illustration of these materials is found in Appendix C.

Results from pilot work with a small sample of middle-class nursery school children indicated that the test had considerable appeal for preschoolers and was easily administered. There was some indication, however, that ten trials taxed the patience of some of the subjects. Rather than restrict the range of the test and reduce the variability of scores across subjects, it was decided that for the present the ten trails should be retained.

One of the most interesting observations obtained from the pilot work was that some subjects varied not only the route which the dog pursued to his bone but also the manner of locomotion. For example, some subjects rolled the dog end to end, had the dog hop or "crawl," and so forth. These kinds of responses fit the criteria of the problem in that they also represented "another way for the dog to get to his bone." However, in the scoring criteria employed by Banta only "innovative, nonrepeated paths" received credit. We felt, on the other hand, that a novel means of moving the dog also reflected innovative behavior and that scoring which took such behavior into account might give a more accurate picture of subjects' performances. Thus, we included such a category as one scoring method employed with our day care sample. In effect, then, two scoring methods were used: one based on the number of trials in which a novel path was achieved and the other based on the

number of trials in which either a novel path or novel manner of moving the dog occurred.

Unusual Uses

Unusual Uses was designed originally as an index of spontaneous flexibility, a factor first identified by Wilson, Guilford, Christensen, and Lewis (1954) in an early factor-analytic study of creative thinking abilities. In the context of Guilford's (1956) structure of intellect model spontaneous flexibility is defined as the ability to produce a variety of class ideas in connection with an object or other unit of thought. The Unusual Uses measure was included in the present battery because (a) it pertained to one of the behavioral objectives selected as important for the day care child by experts in the field of child development (Peters et al., 1972) and (b) its use with other preschool samples (e.g., Peters & Stein, 1966; Gish, 1971), permitted comparison of our day care children's performances with norms obtained for other groups.

Unusual Uses was originally designed for use with adults. Since its publication, it has been modified by other investigators for use with younger age groups, and versions appear in a number of divergent thinking batteries. Torrance (1966) adapted the measure and included it in his Minnesota tests of creative thinking. In the Minnesota battery "tin cans" and "books" were substituted for the "bricks" of the original because evidence suggested that these objects were more suitable for children.

Torrance also conceptualized Unusual Uses as a more complex measure than did Guilford. While Guilford scored the instrument only for

spontaneous flexibility, Torrance scored it for fluency, flexibility, and originality (Goldman, 1967).

The version of Unusual Uses employed in the Day Care Inventory called for the divergent production of class ideas in relation to a cup and a newspaper. Examiner instructions for "cup" were:

> You know what a cup is; you can use a cup for lots of things. Tell me all the things you can think of that you can use a cup for.

Instructions for "newspaper" were:

> Now think about a newspaper--you can use a newspaper for lots of things, too! Tell me all the things you can think of that you can use a newspaper for.

Previous investigators (Peters & Stein, 1966; Gish, 1971) have presented subjects with an actual cup and newspaper in the test situation. This procedure was not followed in the present study in order to minimize the amount of test materials required for the Inventory.

In the present study Unusual Uses was scored for originality, frequency, and flexibility. In effect, the test yielded nine scores: (1) response frequency, newspaper; (2) response frequency, cup; (3) category frequency, newspaper; (4) category frequency, cup; (5) originality, newspaper; (6) originality, cup; (7) total response frequency, cup and newspaper; (8) total category frequency, cup and newspaper; (9) total originality, cup and newspaper.

Any responses which occurred later in the test session were recorded and included in the analysis. Such a procedure was also followed by Gish (1971), who informed subjects that if they thought of more uses later, they might name them for the examiner. This maximization of the time available for production of novel responses was

done in recognition of the often-voiced criticism that the "timed" nature of divergent thinking tests violates the very essence of the creative process (see Goldman, 1967; Barren, 1969); that is, the creative process requires time and "is easily aborted if someone is always blowing the whistle on it [Barren, 1969, p. 37]."

Reliability. There is considerable evidence available in the literature that with sufficient training, high interscorer reliabilities for Unusual Uses can be attained. Yamamoto (1962) has reported the following coefficients for Unusual Uses of tin cans: fluency, 1.00; flexibility, 0.87; originality, 0.98. Wodtke (1964) reported coefficients of agreement ranging from .82 to 1.00 for individual measures in a battery which included Unusual Uses.

Evidence regarding split half and test-retest reliability is more equivocal. Goldman (1967) has summarized some of the factors which may contribute to low temporal reliability for certain creativity measures. The factors mentioned by Goldman are (a) the shortness of some subtests, (b) administrative difficulties in testing young children, (c) the novelty of the tests or time lag problem (that is, when first confronted with uses for an object, a child may give few responses but after an incubation period may give a large number of responses). Wodtke (1964) obtained low test-retest reliabilities for one of the Torrance versions of Unusual Uses with samples of fourth and fifth grade children. Coefficients were somewhat higher for fifth graders but were still sufficiently low for Wodtke to conclude that "the extremely low reliabilities obtained with elementary school children seriously limit the use of the tests at this level [p. 407]." Peters and Stein (1966), who used the same version of Unusual Uses as the present investigators, reported coefficients of

stability of .86 for frequency, .49 for originality and .73 for category change. On the other hand, Gish (1971), who also employed this version of the test, reported coefficients of stability of .36 for category change and .12 for originality.

Validity. The validity of Unusual Uses as a measure of creativity remains to be demonstrated, as is the case with other indices purported to measure aspects of creative ability. Stein (1968) has noted three conditions which measures must satisfy to be regarded as indices of creativity: (a) the variables they purport to tap must be of such a nature that one would expect them to be related to creativity; (b) the tests ought to relate to some criterion of creative behavior; and (c) insofar as the indices are cognitive measures, a separate dimension that can be termed creativity must be involved, i.e., creativity measures should be highly correlated with each other and not significantly related to intelligence tests.

Lack of demonstrable validity for Unusual Uses is not due to a dearth of validational efforts but rather to various unresolved problems in the field. One of the most frequently cited problems is the difficulty of finding suitable criteria for validational purposes. Guilford (1950) outlined two difficulties relating to the establishment of practical criteria: (a) the extreme rarity of creative acts of an unquestionable order of excellence and (b) the phenomenon of function fluctuation. Yamamoto (1965) has enummerated difficulties encountered when using school grades, supervisor and teacher ratings, peer nominations, production records, and psychiatric diagnoses as criteria of creativity.

The criterion problem is particularly acute in preschool age groups where available criteria are more limited. One of the fre-

quently employed criteria for younger populations is the statistical infrequency of responses (e.g., Starkweather, 1964; Wallach & Kogan, 1965; Peters & Stein, 1966; Gish, 1971). In other words, a response is considered creative if (a) it is statistically rare when compared with responses of other children and/or (b) it is rare when compared with other responses given by the same child. This practice is open to the criticism that uniqueness, per se, is insufficient; responses must also meet the requirements of the problem, be utilitarian, or in some way relevant to the realities of the situation. Further, MacKinnon (1962) in work with creative architects obtained evidence which suggested that moderately rare responses (i.e., those occurring in from 1 to 10% of the population) may correlate more highly with rated creativity than extremely rare responses (i.e., those occurring in less than 1% of the population).

While recognizing criterion problems involved in validational efforts, certain general conclusions can be reached about the status of Unusual Uses with regard to validity. Unusual Uses does seem to meet Stein's (1968) first condition that the variable tapped be of such a nature that it would be expected to be related to creativity. Goldman (1967) has asserted that "on face value alone fluency of ideas would appear to be an essential ingredient of creative thinking production, as also would ideational flexibility, originality and elaborative ability [p. 275]." However, versions of Unusual Uses have not consistently satisfied Stein's second condition, that measures be related to some criterion of creative behavior. In a brief survey of criterion-based literature and Guilford-like measures, Stein (1968) concluded that Guilford's tests and their derivatives fare poorly in studies in which they have been correlated with external criteria of creativity. In regard to Stein's third condition, that creativity tests

be statistically independent of intelligence tests but should correlate highly with each other, the evidence is more encouraging. Though early investigations with individual measures and entire batteries (e.g., Getzels & Jackson, 1962; Wodtke, 1964) failed to demonstrate statistical independence, Wallach and Kogan (1965) successfully achieved this differentiation and at the same time demonstrated a high degree of relationship between their creativity indices. One of the measures used by Wallach and Kogan was a version of Unusual Uses, and newspaper was one of the objects for which subjects were asked to produce responses.

Norms. In comparison with other cognitive areas, the field of creativity is still in its infancy in regard to the establishment of norms for available indices. Torrence has developed some tentative norms for his Minnesota tests for certain grades with several hundred, and in some instances over a thousand, subjects as the standardizing sample (Goldman, 1967). However, not even tentative norms are available for preschoolers. Some data based on descriptive populations, as opposed to random sampling procedures, has been reported for the version of Unusual Uses employed by the present investigators.

In 1966 Peters and Stein conducted an evaluative study of Project Head Start in San Mateo County, California. Subjects for the study included 64 Head Start children drawn from four Head Start programs and 29 other children who were put into two control groups. Control Group 1 included 14 beginning kindergarteners with backgrounds economically equivalent to the Head Start sample but no preschool experience. Control Group 2 included 15 preschoolers with predominantly middle-class backgrounds who were enrolled in a summer day care program. Sixty-two percent of the Head Start

sample was black, while 55% of the two control group samples combined was black. Control Group 2 was 93.3% Caucasian.

A test battery which encompassed cognitive and language development, creativity, nonintellective factors, and social competency was administered to all subjects. Only results pertinent to Unusual Uses are reported here in tables 1 through 3.

TABLE 1

PRETEST AND POSTTEST MEANS AND STANDARD DEVIATIONS OF THE HEAD START SAMPLE IN FREQUENCY, ORIGINALITY, AND CATEGORY CHANGE ON UNUSUAL USES (Peters and Stein, 1966)

Measure	Pretest		Posttest	
Unusual Uses	Mean	SD	Mean	SD
Frequency	6.60	5.0	10.3	5.2
Originality	1.14	1.3	2.12	2.5
Category Change	3.40	2.1	6.70	2.5

TABLE 2

MEANS AND STANDARD DEVIATIONS OF THE CHILDREN IN THE HEAD START SAMPLE WHO ENTERED KINDERGARTEN THE FOLLOWING FALL AND CONTROL GROUP 1 IN FREQUENCY, ORIGINALITY, AND CATEGORY CHANGE ON UNUSUAL USES (Peters and Stein, 1966)

Measure	Head Start		Control Group 1	
Unusual Uses	Mean	SD	Mean	SD
Frequency	11.5	4.5	5.14	3.1
Originality	2.04	1.9	0.86	1.4
Category Change	6.67	3.7	3.21	2.0

TABLE 3

MEANS AND STANDARD DEVIATIONS FOR THE CHILDREN IN THE HEAD START SAMPLE WHO ENTERED KINDERGARTEN THE FOLLOWING FALL AND CONTROL GROUP 2 IN FREQUENCY ORIGINALITY, AND CATEGORY CHANGES OF UNUSUAL USES

(Peters and Stein, 1966)

Measure	Head Start		Control Group 2	
Unusual Uses	Mean	SD	Mean	SD
Frequency	11.5	4.5	10.3	5.3
Originality	2.04	1.9	2.13	2.0
Category Change	6.67	3.7	5.13	3.3

Selected findings for Unusual Uses were as follows: (a) the Head Start sample scored significantly higher on the posttest than on the pretest on all three Unusual Uses subscores, (b) the Head Start sample scored significantly higher than Control Group 1 on all three Unusual Uses subscores, and (c) the Head Start sample did not differ significantly from Control Group 2 on any of the Unusual Uses subscores.

In 1971 Gish developed an evaluation model for early childhood education and utilized it to conduct an evaluative study of a Montessori nursery school and a nursery school run by The Pennsylvania State University. Subjects in Gish's sample included 16 children drawn from The Pennsylvania State University Nursery School and 15 children drawn from a Montessori school in State College, Pennsylvania. The mean age of the Penn State sample was 50 months (SD = 4 months), and mean age of the Montessori sample was 43 months (SD = 9 months). A large number of measures were administered

to subjects, parents, and teachers. Children received pretests and post-tests with approximately a 7-month interval between testings. Table 4 and Table 5 report results relevant to subjects' performances on Unusual Uses.

TABLE 4

PRETEST MEANS AND STANDARD DEVIATIONS OF THE SUBSCORES AND THE TOTAL SCORES OF UNUSUAL USES FOR THE MONTESSORI AND PENN STATE SAMPLES (Gish, 1971)

Measure	Montessori		P.S.U.	
Unusual Uses	$\bar{x}$	SD	$\bar{x}$	SD
Frequency				
- cup	4.13	3.35	3.19	1.97
- newspaper	2.47	1.55	2.44	1.59
- total	6.60	4.56	5.63	2.80
Category Change				
- cup	2.00	1.85	2.00	1.63
- newspaper	2.40	1.58	2.13	.96
- total	4.40	3.12	4.13	1.96
Original				
- cup	.73	1.33	.75	1.29
- newspaper	1.13	1.06	.94	.93
- total	1.87	2.03	1.69	1.74

TABLE 5

POSTTEST MEANS AND STANDARD DEVIATIONS OF THE SUBSCORES AND THE TOTAL SCORES OF UNUSUAL USES FOR THE MONTESSORI AND PENN STATE SAMPLES (Gish, 1971)

Measure	Montessori		P.S.U.	
Unusual Uses	$\bar{x}$	SD	$\bar{x}$	SD
Frequency				
- cup	3.93	1.87	4.63	2.63
- newspaper	2.27	1.44	2.50	1.03
- total	6.20	2.78	7.13	.89
Category Change				
- cup	1.87	1.13	2.63	1.67
- newspaper	2.20	1.37	2.38	.89
- total	4.07	1.98	5.01	2.13
Original				
- cup	.60	1.00	.94	1.44
- newspaper	1.00	1.41	1.25	1.18
- total	1.60	1.92	2.19	1.94

In brief, pretesting with Unusual Uses yielded no significant differences between the two groups either on subscores or total scores. There were no significant differences between the Montessori and the Penn State sample on Unusual Uses after a 7-month interval either. However, the Penn State sample obtained numerically higher scores than the Montessori sample on all posttest subscores and total scores.

The Many-Splendored Cube

The Many-Splendored Cube was devised by the authors as a measure of (a) curiosity or exploratory behavior and (b) the range of sensory modes employed in this type of behavior. It was selected for inclusion in the Day Care Inventory because of the accumulation of evidence showing that exploratory behavior is of critical importance to cognitive and other areas of development. The position of many contemporary developmentalists on the role of curiosity in child development is exemplified by Minuchin's (1968) view:

> The active exercise of exploration during this preschool period...gives (the child) a cognitive base of information and learning...a sense of process and relativism...If we are to follow the theorists a step further, it is also likely that this process serves the child in other ways, fostering his sense of mastery and his psychological growth as a confident and effective individual [p. 2].

In addition, the behavior sampled by The Many-Splendored Cube was selected as an important day care objective by a significant number of child development experts who responded to our survey of day care objectives (Peters et al., 1972). The test of the objective as it appeared in the survey was as follows:

> Uses effectively all of his senses for exploring his world.

Two major considerations governed construction of The Many-Splendored Cube: (a) the desire to devise a measure which was novel and which was relevant to visual, auditory, olfactory, and tactual senses and (b) the cost of availability of materials. The base of the cube was a 4-inch pull-apart cube available commercially for displaying photographs. Each of the six surfaces of the cube was covered with a distinct material

selected for appeal to visual and/or tactile senses. The materials, affixed to the cube with epoxy glue, were as follows: (a) a square of synthetic yellow fur, (b) a square of red vinyl, (c) strips of blue labeling tape with raised white dots punched at random intervals, (d) a square of medium grade sandpaper, (e) a square of shiny gold paper with reflective qualities, and (f) a square of green contact paper to which pictures of a red-winged blackbird, a bunch of forget-me-nots and a butterfly were affixed.

The cube also had properties which appealed to the auditory and olfactory senses, though it was not feasible to represent these modalities to the extent that the visual and tactile senses were represented. Olfactory stimulation was provided by applying a liberal dose of an inexpensive after-shave lotion to the synthetic fur. In addition, a bell and a paper clip were placed in the interior of the cube to give it auditory properties. Appendix C contains drawings representing two views of the cube.

Administration of the measure is quite simple. The cube is placed on a table in front of the subject as the examiner says, "Here is something for you to play with while I work on these papers." The examiner then proceeds "to work on papers" while unobtrusively observing and recording the child's behavior and verbalizations on the record form provided. If the child has not touched the cube after 30 seconds have elapsed, the examiner says, "Here, you can play with it," and hands the cube to the subject. The measure is scored for (a) spontaneous initiation, (b) task involvement, (c) verbalization, and (d) behaviors engaged in in response to the cube.

Review of Related Literature

In the past three decades a considerable amount of literature has accumulated on orientation, curiosity, exploration, manipulation, and sensory deprivation. Most of the work in these areas has been conducted with animals, and it has been only comparatively recently that investigations have been conducted with human subjects. Cofer and Appley (1964) have succinctly summarized what investigations of these behaviors have suggested:

> It does seem clear, however, that animals and men will respond to stimulus novelty, complexity and similar stimulus attributes by orientation, exploration, or investigation at least under some conditions. Hunger, thirst, and fear seem to limit these behaviors, and responses which are followed by or which involve orientation, exploration, or investigation may be learned without further reward [p. 298].

However, while the consistency of findings has permitted some generalizations to be drawn about these behaviors, their theoretical significance is unclear. Cofer and Appley (1964) have noted that many investigators of external motivation have proposed that special drives underly curiosity and exploratory behavior. Thus, Montgomery (1953) has spoken of an exploratory drive, Berlyne (1960) of curiosity, and Harlow, Blazek, and McClearn (1956) of manipulation motives, while researchers on sensory deprivation have implied a drive for stimulation. In these views, the source of the drive is not conceived in terms of internal conditions or homeostasis; rather, external stimuli have been implicated as the motivational source for such behaviors (Cofer & Appley, 1964). On the other hand, a consideration of the characteristics and conditions of these "drives" indicates that other interpretations are feasible, and an uncertainty as to their

systemic status results. Both Cofer and Appley (1964) and Haber (1966) provide an excellent description of existing views and a consideration of the theoretical issues involved.

Two facets of research on exploratory and associated behaviors have had particular impact on the field of child development in recent years. First, the finding that deprivation of the opportunity to explore, manipulate, and perform other such activities early in life has a deleterious effect on cognitive and social development has stimulated much experimentation with various forms of environmental enrichment. Second, the postulation that a drive state underlies exploratory and associated behaviors has provided the impetus for studies investigating correlates of individual differences in drive level. Two studies focusing on aspects of variability in exploration in younger age groups will be reviewed here in some detail.

Minuchin (1968) conducted an investigation of the exploratory processes of preschool disadvantaged children. The study had two goals: (a) to "develop ways of systematically describing variations in expressed curiosity and constructive exploration in preschool disadvantaged children [p. 2]," and (b) to examine the relationship between spontaneous exploration and other facets of development. In the context of Minuchin's study exploratory behavior was conceptualized in two rather disparate ways, which Minuchin labeled "two forms of exploratory behavior [p. 6]." The first "form" regarded exploratory behavior as "a response to uncertainty or to perceived discrepancies between what is experienced and what is expected [p. 6]." The second form involved "sheer novelty-seeking [p. 6]."

Minuchin claimed to have addressed herself to both "forms" in her investigation.

Subjects for Minuchin's study included nine black males and nine black females enrolled in a Head Start program. The mean age of the subjects was 4 years 3 months. Data on the subjects' exploratory behavior was derived from four sources: (a) observation of subjects in new preschool situations, e.g., trips to new places; (b) teacher and observer rankings; (c) an object-curiosity score based on behavior in response to a kaleidoscope; and (d) subjects' explorations of peripheral stimuli during a test session as recorded on a check list by the examiner. In addition, measures were also obtained of (a) concept formation, (b) perception of adults and the environment, and (c) aspects of self-image.

Analysis of data indicated a significant degree of relation between three of the curiosity measures. However, the measure derived from subjects' exploration of peripheral stimuli during testing was not significantly related to the other measures. Minuchin (1968) interpreted this lack of relation as an indication that exploration of peripheral stimuli may have been as much an indication of distractability as of curiosity. With respect to the curiosity measures employed in her study, Minuchin concluded that (a) exploratory behavior can be reliably assessed in young children, (b) on-going school programs can yield reliable information on spontaneous behavior in naturalistic situations, and (c) there is some degree of consistency in children's positions with respect to environmental opportunities in terms of an approach-avoidance continuum.

Analysis of the Minuchin data also indicated that children who are

more exploratory as assessed by her indices tend toward (a) a more differentiated self-image, (b) greater expectations of "support, coherence and facilitation [Minuchin, 1971, p. 948]" from the environment, and (c) greater conceptual mastery. Of particular interest from our standpoint was the finding that the object curiosity score (derived from the kaleidoscope) was the poorest predictor of performance on other measures, although it was highly correlated with teacher observations ($r = .70$). In effect, the Minuchin data suggest that observational measures of curiosity behavior in a school setting provide a more reliable indication of performance in related areas than do children's responses in an artificial laboratory situation.

Banta (1970) has devised and utilized several measures of curiosity in conjunction with his development of the Cincinnati Autonomy Test Battery (CATB). In the context of Banta's battery, these curiosity indices are purported to measure a "separate aspect of self-regulating behavior relevant to good problem-solving strategies [p. 424]. In effect, curiosity is construed as a variable related to autonomous functioning in problemsolving. Further, Banta (1970), drawing heavily on the work of Montgomery (1953) and Harlow et al. (1956), attributes drive status to curiosity. Relying exclusively on Montgomery (1953) for the conceptualization of conditions activating the so-called curiosity drive, Banta (1970) quotes Montgomery's assertion that "a novel stimulus elicits in an organism an exploratory drive which motivates exploratory behavior." He goes on to take the position that individual differences exist among preschool children in the degree to which this exploratory drive is manifested. He asserts that these individual differences are attributable

to "social anxieties, immaturity, fear of novel stimuli, separation anxiety, and paucity of encounters with 'not me' objects [p. 434]."

Two instruments devised to assess curiosity appear in the CATB: The Task Initiation Test and The Curiosity Box. In the Task Initiation Test four wooden figures are arranged on a table prior to the child's introduction to the test situation. When the child enters the test situation, he is seated in front of the figures and is rated by the examiner on degree of initiation and contact with the test materials during a 2-minute period. In The Curiosity Box, the subject is presented with the box and his behavior is observed for a 5-minute period by the examiner. The major observational division is between activity and verbalization. Briefly, children are observed and scored for five varieties of activity: (a) visual exploration, (b) manipulatory exploration, (c) tactual exploration, (d) movement-subject, and (e) movement-box. Children are also scored for two varieties of verbalization: (a) curiosity verbalization and (b) fantasy-related verbalization. A more detailed description of these tests and scoring criteria may be found in Banta (1970).

Banta (1970) has reported some preliminary findings on the reliability and validity of both The Task Initiation Test and The Curiosity Box and has published some normative data based on the performance of his sample on both indices. A description of Banta's sample appears elsewhere in this report (see Dog and Bone, p. 15). In general, test-retest reliability coefficients were high for both indices as were coefficients of internal consistency and coefficients of inter-rater reliability. Intercorrelation of CATB measures indicated that performance on The Task Initiation Test

was significantly related to The Curiosity Box Activity scores, Curiosity Verbalization, and Fantasy Verbalization. Correlation coefficients expressing the degree of relation between performance on both The Task Initiation Test and The Curiosity Box and other indices in the CATB were comparatively low. Banta interpreted these findings as evidence of the validity of his two curiosity indices.

Other results led Banta to the additional conclusions that (a) curiosity behavior is independent of task performance where goals are clearly defined, impulse control is necessary, and compliance with instructions is required; (b) curiosity related behavior is not normally distributed, but, rather, examination of frequency distributions suggests that these variables are platykurtic; (c) curiosity behaviors share little common variance with performance on conventional indices of intellectual ability; and (d) curiosity and exploratory behavior are supplemented by spontaneous verbalization.

Both the Minuchin (1968) study and Banta's (1970) work have considerable heuristic value and are exciting in the sense that they represent efforts to apply what has been learned through research with animals and in laboratory settings to human problems. There has not been enough of this type of activity in the past, and any effort, however much it falls short of the ideal, should be welcomed.

On the other hand, it is apparent that Minuchin, Banta, and other investigators in the field, ourselves included, have failed to comprehend and take into account some of the finer issues involved in the area of exploratory and associated behaviors. For example, one cannot help but note that Minuchin's measures do not really seem, even from the standpoint

of face validity, to be measuring either one of the two forms of exploratory behavior which she so carefully defines in the first part of her study. Along the same line, Banta attributes curiosity with drive status without consideration of the literature (cf. Cofer & Appley, 1964) which challenges Montgomery's (1953) and others' position. In appraising the present status of research on curiosity and related behaviors in the field of child development, it would appear that there is a distressing lack of appreciation for the complexity and equivocal nature of the variables involved and that research in this area requires much more rigorous definition from the standpoint of theoretical conceptualization.

Pilot Results

A small pilot study was conducted in order to determine the suitability of The Many-Splendored Cube for preschoolers and to provide some information on scoring reliability. Subjects for our pilot work included nine males and females drawn from classes at The Pennsylvania State University Nursery School. Three observer-scorers were used, all of whom had had considerable experience in working with preschool children. One scorer administered The Many-Splendored Cube and rated in the subject's presence, while the other two scorers observed via a one-way mirror.

Analysis of data showed that out of 15 possible comparisons between pairs of raters, there was 93% agreement on spontaneous initiation. Similarly, there was a high degree of agreement among pairs of raters on the task involvement rating.

Our pilot investigation also yielded some practical information from which we were able to profit in our field work. In brief, examiners reported

that many children tried to peel materials off the cube surfaces and in some instances were successful. Thus, for our field work, we provided our testers with epoxy glue and assorted materials for repair of the cube.

Assessment of Language Development

Language development may be roughly divided into receptive and expressive aspects. Receptive language involves the sensory and initial comprehension of the message, and expressive language refers to the "ability to encode thought into a verbal sequence suitable for oral communication," plus the mechanics of speech or articulation involved (Reynell & Huntley, 1971, p. 550). This dichotomy is similar to the "comprehension" - "production" distinction drawn by Mussen, Conger, and Kagan (1969), and the "auditory comprehension" - "verbal ability" division made by Zimmerman, Steiner, and Evatt (1969).

Receptive and expressive language functioning are, of course, integral parts of the Day Care Inventory components which utilize verbal instructions and require verbal response. Expressive language functioning is specifically focused upon in two measures of the Day Care Inventory: Picture Naming and Picture Interpretation. In the Picture Naming task, the child is asked to name pictures of common objects, and in the Picture Interpretation measure the child is asked to "tell all about" a picture of a day care classroom which includes children, adults, and play materials. Both measures relate to a child's ability to describe things in his own words, an educational objective selected by operators and experts in an objectives survey made by staff of the Pennsylvania Day Care Study

(Peters et al. 1972). In addition, Picture Interpretation provides an opportunity to investigate the child's perception of the day care milieu and the social and classroom cues to which he attends.

During the preschool years language develops at a rapid pace. From the appearance of the first word at around 1 year of age, the child's vocabulary increases to over 2,000 words by age 6 (Smith, 1926).

Nice (1925) discusses four stages in the development of the sentence. The first is the single word stage lasting an average of about 6 months. The second is the early sentence stage when the child combines two words used singly earlier. This development occurs anywhere from the thirteenth to the twenty-seventh month and is characterized by incomplete sentences consisting mainly of nouns, verbs, and adjectives. Next is the short sentence stage which has similar characteristics to the early sentence stage except that sentences have increased to 3.5 to 4.5 words in length. The fourth stage is that of the complete sentence. Sentences are from 6 to 8 words in length and approach the level of simple adult speech.

Picture Naming

The child's ability to name pictures of various common objects has been found to precede his elaboration of different aspects of more complex picutres. Reynell and Huntley (1971) cite evidence of the rapid development in naming (spoken vocabulary) between 1.5 and 4 years of age and the use of language to express creative and more complex sequences of ideas beginning at 2 years and continuing to increase well beyond 6 years of age. Smith's (1935) analysis of 305 records of spontaneous speech of 220 children age 18 months to 6 years showed that the number

of sentences that were merely naming decreased with age. Naming made up 13.2% of all sentences of 2-year-olds and only 1.3% of the sentences of 5-year-olds. McCarthy (1930) found a similar decrease in naming with age. This developmental change can also be conceived of as a concrete to abstract shift in the use of language (Sigel, 1964). Ausubel and Sullivan (1970) state that initial vocabulary acquisition (naming) tends to be of a concrete nature, with words gradually coming to represent abstract concepts or ideas.

Development of Picture Naming as a Measure. Baldwin and Stecher (1924), in an early attempt to develop standards for measuring physical and mental development in preschool children, included a picture vocabulary task as an assessment of expressive language development. Fifty black-and-white pictures of common objects were selected from a mail order catalog and pasted to 3" X 5" index cards. The cards were shown to the child, and he was asked to identify each. Ninety-five children from 2 to 6 years of age were tested. The results are given in Table 6.

TABLE 6

RESULTS OF BALDWIN AND STECHER'S
PICTURE VOCABULARY TASK (1924)

	Age				
	2	3	4	5	6
No. of Children	5	26	21	29	14
Average	19.2	29.7	38	44	45.6
Range	5-27	12-41	28-45	37-49	40-50

Smith (1926) extended the Baldwin and Stecher (1924) vocabulary study to include verbs, adjectives, and other parts of speech. Five hundred words were systematically selected from the Thorndike and Lorge (1944) 30,000 word list. From this group of words only those 203 words appearing in published vocabularies of children from 18 months to 6 years of age were retained for study. Real objects or pictures from magazines were used to represent the words whenever possible. When representation was impossible, two types of questions were asked. One was meant to elicit the appropriate word from the child, and the other was phrased in such a way that the child could not answer unless he understood the word. In scoring, no differentiation was made between words produced by the child and words understood but not verbalized. Smith asserted that by multiplying the child's score by 20 (every 20th word in the Thorndike-Lorge list was sampled) his total vocabulary could be predicted. The investigation involved 273 children from 8 months to 6 years of age. Vocabularies from children below 2 years of age were obtained from lists from mothers. Average vocabulary size at 3-month intervals is presented in Table 7.

TABLE 7

AVERAGE VOCABULARY SIZE (CONDENSED)
OF SMITH'S (1926) SUBJECTS

	Age						
	8 mo.	1 yr.	2 yr.	3 yr.	4 yr.	5 yr.	6 yr.
No. of Children	13	52	25	20	26	20	9
Voc. Size	0	3	272	896	1,540	2,072	2,652

Williams and McFarland (1937) revised the Smith vocabulary test by: (a) shortening the number of words to 84 and dividing them into two equivalent forms, (b) systematically testing the productive and receptive vocabularies, and (c) standardizing the picture material. Three hundred and five children from 27 to 74 months of age were tested. Most of their subjects, 242 children, were from the Iowa preschool laboratories and were above average in intelligence, while 64 were orphanage children of low socioeconomic status and were below average in intelligence. The authors assert that the test measures only vocabulary maturity and is not a predictor of a child's total vocabulary. Test results were cited, but vocabulary estimates comparable to Smith's data were not provided.

Terman and Merrill (1937), in the second Stanford revision of the Binet intelligence test, included a picture vocabulary test in both Form L and Form M for the age range from 2 to 4 years. They then included 18 of the objects depicted in these forms in the picture vocabulary test of the third Stanford revision (1960).

TABLE 8

SCORING FOR THE BINET PICTURE VOCABULARY TEST

Number of Correct Responses Required to Pass the Test

	Age				
Test Form	2	2-6	3	3-6	4
Form L	2	9	12	15	16
Form M	2	7	10		12
Form L-M	3	8	10		14

The Binet picture vocabulary has been used to compare brain damaged preschool children to normal preschool children. Graham, Ernhart, Craft, and Berman (1963) administered various tests, including Binet's picture vocabulary test, to 108 normal children from 2.5 to 5.5 years of age. Ernhart, Graham, Eichman, Marshall, and Thurston (1963) compared these results from normal children to those of 70 brain injured children from 3 to 5 years of age (IQ above 50). The performance of brain injured children was significantly inferior to that of normal children on the picture vocabulary tests.

Picture Naming in the Day Care Inventory. The Picture Naming measure employed in the Day Care Inventory required various stages of preparation. First drawings of 30 objects or animals were completed. Some of the items were inspired by the Binet series and some were developed specifically for this measure. The 30 items were than pilot tested on a small number of preschool age children, some of whom attended The Pennsylvania State University Nursery School. Twenty items were retained for the measure: hat, telephone, rowboat, purse, hand, car wheel, knife, pitcher, fish hook, tree, key, spider web, coat, hinge, leaf, fork, umbrella, guitar, football, and horse. (See Appendix C for some examples.)

Although a wide range of difficulty was represented in the instrument, most items were named correctly by well over half of the children in the pilot study. While this characteristic is undesirable from a statistical point of view, it did contribute to the series being an enjoyable one for the children.

Picture Interpretation

Children's responses to pictures of a familiar situation have been

utilized as a component of intelligence tests, as a projective instrument used primarily with children slightly older than those in day care, and as a measure of children's facility with spoken language.

Picture Interpretation Measures and Intelligence Testing. The Stanford Binet Intelligence Scale (Terman & Merrill 1960) includes a test of a child's response to pictures. This measure appears at the 3.5-year level and again at the 6-year level; the child is asked to tell the examiner all about three pictures. There are three categories within which the child's response may be classified:

> (a) Enumeration. At least three objects must be named spontaneously, that is without interviewing questions or urging.
> (b) Description, which need not refer to more than a single element of the picture.
> (c) Interpretation, which may be inadequate or incorrect though not purely fanciful or bizarre [Terman & Merrill, 1960, p. 133].

Terman & Merrill's (1960) scoring criteria allow enumeration to receive credit at the 3.5-year level only and make no specific differentiation between description and interpretation, either of which receives credit at the 6-year level.

Joesting and Joesting (1971a) administered a picture interpretation test created by Torrance (1966) to 27 children between the ages of 4 years 9 months and 13 years 8 months. The test consisted of subjects being shown the picture and then asked to answer 12 yes or no questions about various features of the picture. Subjects' responses on the test correlated .60 with Stanford-Binet I.Q. scores. A later replication with children between the ages of 6 years 5 months and 13 years showed similar results, with the

correlation between Stanford-Binet mental age scores and the picture interpretation test being .58 (Joesting & Joesting, 1971b).

Irwin (1966b) compared responses of cerebral palsied children on the Peabody Picture Vocabulary Test (PPVT, Dunn, 1965), a test of receptive vocabulary in which the child points to the object named by the examiner, and their response to questions about pictures of cerebral palsied children in different activities. He found the correlation .55 to be significant beyond the 1% level. In a similar study with mentally retarded children, the correlation between the results of the two vocabulary tests fell short of the 5% level of significance (r = .55).

Picture Interpretation Measures as Projective Instruments. Picture interpretation measures have been used clinically as projective instruments with older children and adults. Alexander (1971) developed a picture interpretation test to assess children's perceptions of adults. The Adult-Child Interaction Test consists of eight pictures of children, usually in the presence of an adult in relatively unstructured situations. The test is administered to young children individually and to older subjects (age range 6-65) in groups. Analysis is made on the basis of two broad headings: (a) apperception and reasoning and (b) motivation and emotion.

Engel (1971) has developed a picture interpretation measure (the School TAT) to investigate ways children cope with school demands. The School TAT involves the administration of five pictures depicting school-age children in ambiguous, school-oriented situations.

Kagan and Lemkin (1960), in attempting to appraise the perceptions which younger children have concerning parental attributes, developed a projective technique using pictures. Their subjects were 67 children

aged 3 years 9 months to 8 years 6 months. The first set of pictures, designed to help the child focus on the task, consists of a picture of a family, one of a mother and another of a father. The questions asked of the child are related to parental nurturance, competence, punitiveness, and source of fear. In the second set of pictures, in which the parents are missing, the child is asked to tell which parent would be participating with the child in a particular activity. The authors reported no significant differences between responses of younger and older children. They also indicated that their method, as opposed to direct questioning without pictures, "gave a more accurate appraisal of the child's perceptions [p. 446]."

Picture Interpretation and Language Development. Responses of young children to pictures of familiar scenes have been studied for the purpose of assessing a child's level of expressive language development.

Reynell and Huntley (1971) developed scales for the assessment of three different aspects of language development. The first two scales involve receptive language (comprehension or understanding) and are not discussed here. The third scale assesses expressive language, which includes separate sections on language structure, vocabulary, and content. The third section on content involves the child's ability to verbalize connected ideas in describing pictures. The scoring here is according to the number of ideas expressed; for example, "The children/are laying/the table" is tabulated as three ideas (p. 554). In the standardization sample of 636 non-handicapped English children aged 1 to 5 years, the authors found this aspect of language to begin at 2 years and to increase well beyond 6 years.

Loban (1963), in an attempt to analyze longitudinally the oral language of a stratified sample of kindergarten children, developed an assessment instrument consisting of six pictures (Picture Interview). The pictures were chosen for their interest to young children, their success in preliminary trials, and their value in previous research. In the interview, each child was asked to discuss what he saw in each picture and what he thought of each one. All verbalizations were tape-recorded and then analyzed on the basis of structure, meaning, function, and style. The findings reported the following changes occurring with age: (a) number of words spoken increased, (b) number of meaningful groups of words increased, (c) fluency and readiness of response increased, (d) more varied vocabulary increased, (e) number of meaningful groups of words needed for expression decreased.

Ammon and Ammon (1971) used Loban's (1963) Picture Interview (PI) as part of their study on the effects of language training with black preschool children. One experimental group participated in vocabulary training sessions where they practiced responding to portions of the PPVT and the PI. The other experimental group was given practice in the use of sentences. It was reported that the PI-PPVT training group showed significant increases in vocabulary production and recognition, whereas the sentence training group showed no significant effects.

Dailey (1965), in constructing a measure of language facility, chose 12 pictures (plates) which were meaningful to students from a variety of backgrounds. For example, one of the pictures was of children of migrant workers interacting with a teacher. Another was a simple drawing of a child. With this instrument each child is shown three of the plates in order to elicit the language samples to be analyzed.

Irwin (1966b) also used picture interviewing techniques along with the PPVT to compare the vocabulary of use and of understanding of cerebral palsied children ages 5 to 17 years 5 months. The pictures that were chosen appeared to be scenes with which a cerebral palsied child might identify. They were clear and uncluttered and depicted some degree of activity. The children were asked questions such as, "What do you see in each picture?" Results indicated a significant correlation between chronological age and both measures of vocabulary. On the other hand, in the same study done with mentally retarded children (age 5-16 years), Irwin (1966a) found that these trends did not exist.

Jeruchimowicz, Costello, and Bagur (1971) utilized a combination of the PPVT and picture interviewing to compare lower socioeconomic status (LSES) and middle-class (MSES) Negro preschoolers on their knowledge of action words (verbs) and object words (nouns). The picture interviewing involved showing one picture and two cartoon strips to the children in order to elicit verbal responses to the stimuli. The proportion of errors on both action and object words was significantly higher for LSES than MSES children (PPVT). Although no social class differences were found in the proportion of action concepts present in the speech sampled in the picture interviews, LSES children made a significantly higher proportion of errors on action words than object words (PPVT). With MSES children there was no difference in the proportion of errors (PPVT).

Picture Interpretation as a Measure in the Day Care Inventory. The stimulus picture developed for the Day Care Inventory was designed to depict a relatively rich but nonconfusing scene to which a child could respond

by enumeration, description, or interpretation. The picture is presented in Appendix C, although the children's facial expressions are not faithful replicas of those in the picture used in the field assessment.

A day care scene was selected primarily because it assured the child of a familiar milieu for description. Further, a day care scene allowed exploration of other variables of interest such as the child's attention to various social groupings (a solitary child, two children, a group of several children and one adult, a child on an adult's lap) and to play materials and environmental features. Although most elements and structures of the picture were clear, some details (e.g., expressions, postures, and the item in front of the solitary child) were sufficiently ambiguous to allow for a latitude of interpretation and, hence, had a "projective" quality to them.

Pilot work with the picture was done with local preschool children. Various modifications were made so that (a) some parts of the picture had more equal "stimulus pull" or attraction for the child, (b) some elements were increased in clarity or ambiguity, whichever was desired for a particular element, and (c) the appeal of the total task for the child was optimal.

Gross Motor Skills

There are two commonly accepted types of motor skill: gross and fine. Guilford (1958) offers evidence of the two motor domains in his factor analytic study of a number of motor proficiency tests. He found two major factors: fine motor, including finger speed, arm steadiness, arm and hand precision, and hand finger dexterity; and gross motor, including static

balance, dynamic precision, gross body coordination, and flexibility. Running, jumping, lifting, and climbing are examples of gross motor skills, while writing, playing musical instruments, and doing skilled manipulatory work represent fine motor skills. (Hurlock, 1964) The gross skills usually come under control during the preschool years of a child's life, and the finer ones become a major area of development later, although coordination of fine motor skills does begin during the preschool period. (Ausubel & Sullivan, 1970)

The decision to include gross motor performance in the present battery of assessment measures was based on two distinct factors. According to the results of a survey taken at the beginning of the Pennsylvania Day Care Study (Peters et al., 1972), day care operators throughout the State have selected gross motor development as a goal toward which preschool children should work. An equally important factor influencing the inclusion of motor skill assessment is the importance of motor functioning to the social and personality development of a child.

Ausubel and Sullivan (1970) state:

> The motor ability of a child constitutes an important component of his feelings of competence in coping with the environment. It enables him to feel either executively independent and capable of looking after his own needs or relatively dependent on the physical assistance of others. It also constitutes an important source of primary status in the home, school, and peer group [p. 700]. ["Primary status" here refers to his real or actual functional competence, power, or control. (p. 252).]

The Relationship Between Motor Development and Personality and Social Development

A number of research studies point to a relationship between motor

development and personality and social development, with the relationship taking on progressively increasing significance for a child as he leaves the preschool years. In a study of motorically handicapped children, Wenar (1953) found that handicapped children, as compared with normal children, had difficulty in setting realistic goals for themselves. The study involved 36 children between the ages of 8 and 10 years (12 nonhandicapped, 12 moderately handicapped, and 12 severely handicapped) who were given a level-of-aspiration task involving five trials of putting pegs in a pegboard. The findings suggested that "the handicapped child can maintain a realistic attitude toward his capabilities for only a limited period of time; then under the pressure of the frustrations of limited or unpredictable achievement, his attitude changes to a wishful one of what he would like to be able to do rather than what he is capable of doing [pp. 129-130]."

Bjerstedt (1956) in a sociometric study of 140 Swedish children between the ages of 9 and 14 years, found sociometric status ("superselected" vs. "superrejected" groups divided on the basis of teacher and peer ratings) related to "physical achievements" among both boys and girls. The "superselected" children had significantly higher "school marks" in physical achievement. In regard to this finding Ausubel and Sullivan (1970) further state that "strength and motor skills are integral components of the body image that impinge on self-esteem since they and their reciprocals are socially admired and disparaged in much the same way as tallness and shortness, mesomorphy and obesity. Retardation in motor competence forms the beginning of a vicious cycle in social maladjustment that is difficult to break [p. 701]."

A study of behavioral contagion among children between the ages of 11 and 15 years, in a summer camp environment, pointed to a number of personal characteristics which determined a child's prestige, that is, his ability to influence others in his group (Polansky, Lippitt, & Redl, 1950). The prestige factor of "ability in athletics," as judged by peers, was significantly related to "effective influence" (boys and girls combined).

Another study relating to personality and social adjustment (Rarick & McKee, 1949) pointed to observed characteristics of children with high and low motor competence. The study involved 172 third-grade children (82 girls, 90 boys) and used scores of seven tests of gross motor performance, including measures of running, jumping, throwing, striking, catching, agility, and balance. The authors found that children in the "superior group" were rated by teachers as tending to be "active, popular, calm, resourceful, attentive, and cooperative." Children in the inferior group were more often given a rating of "shy, retiring, and tense." These findings may be taken only as suggestive, since no statistical tests of significance were used to compare the two groups.

Research on Gross Motor Functioning

Gutteridge (1939) studied the development of certain motor skills in children between the ages of 2 and 7 years. He established median levels at which children demonstrated an "easy coordinated performance" of ten different gross motor abilities. Thirty-one teacher-observers rated children in free play situations as to the degree of proficiency in the ten tasks over a period of 1 year. A total of 1,973 children were used in constructing the norms. Varying numbers of children were counted within

each individual activity however; Table 9 indicates the median age of accomplishment of boys and girls combined. For a precise definition of the activities, the reader may consult the glossary of terms presented at the end of this section.

TABLE 9

MEDIAN AGE FOR GROSS MOTOR ACTIVITIES

(Gutteridge, 1939)

Activity	Age Level in Months	Activity	Age Level in Months
Sliding	24-29	Hopping	60-65
Tricycling	36-41	Throwing a ball	60-65
Climbing	42-47	Galloping	66-71
Jumping	54-59	Bouncing a ball	66-71
Skipping	60-65	Catching a ball	66-71

Hartman (1943) explored the relationship between the hurdle jump and achievement on selected gross motor tests in order to see whether there were a number of specific motor abilities or a general motor ability. The hurdle jump was compared with such tests as jump and reach, standing broad jump, baseball throw for distance, and 35-yard dash. Fifty-six subjects between the ages of 49 and 78 months (29 boys, 27 girls) were tested. The correlations between the hurdle jump and each of the other tests yielded coefficients ranging from .44 to .53. This range showed that the hurdle jump, while positively related to the other tests, was of little value as a predictive measure of the other motor abilities tested. However, Hartman does point out that there is a moderate degree of commonality of interrelatedness between the measures.

GLOSSARY

Definitions of Each Activity (Gutteridge, 1939, p. 39)

Hopping -- a series of even jumping movements along the horizontal level of the floor or ground.

Skipping -- a series of rhythmical movements along the horizontal level of the floor or ground involving a slight hop on alternating feet.

Galloping -- bounding forward with a long step on the forward foot.

Jumping -- launching the body from one solid surface to another, or over an obstacle such as a rope or block, or across a stretch of ground as in the broad jump with both feet off the ground at once.

Climbing -- ascending from a lower to a higher level or descending from a higher to a lower one by means of feet in stepping.

Sliding -- propelling the body or allowing it to slip down a sloping board.

Tricycling -- using the tricycle as a means of locomotion involving pedalling with the feet and guiding by hands.

Bouncing ball -- launching a ball downwards so that it hits the ground sharply and is deflected upwards again.

Throwing ball -- launching the ball by a quick movement of the hand or hands and a release of the ball.

Catching the ball -- holding hand or hands in such a position that the ball is grasped while it is in flight.

Measurement of Gross Motor Functioning

Estimates of a child's gross motor ability have been made through global and specific ratings by those familiar with the child's performance and through direct assessment. Hess, Kramer, Slaughter, Torney, Berry, and Hull (1966), for example, in their evaluation of Head Start included within their "Readiness Checklist" a global rating on a 7-point scale of motor coordination and balance. This check list was given to

kindergarten teachers to complete for the children who had been in Head Start and for those who had not, and no significant difference was found between the groups.

Rating Scales. Doll's Preschool Attainment Record (PAR, Doll, 1966), a refinement and extension of the well respected Vineland Social Maturity Scale, was designed to give a picture of a child's abilities through an interview with an informant familiar with the child's behavior. This scale has not, however, been normatively standardized, but is based on "preliminary" findings. The mean (i.e., average) ages of the items are established from the initial findings (the nature of these findings not being precisely defined in the manual), with preliminary norms indicating the following:

> Balances (mean age 2.5) stands in place on each foot alternately...maintaining equilibrium...
> Hops (mean age 4.0) moves by successive jumping or leaping on either foot or both, in place or from place to place.
> Climbs (mean age 3.0) ascends or mounts by use of hands and feet by grasping and pulling self on furniture, up stairs, over obstacles.
> Jumps (1) (mean age 3.5) leaps or springs randomly from place to place with both feet momentarily unsupported, on level or over objects....
> Circles (Mean age 4.5) joins in games (e.g., drop hanky, London Bridge, Looby Lou, Farmer in the Dell) which require group ambulation; or turns about in short circles as in dancing.
> Skips (mean age 5.0) hops on alternate feet for continuous progression from place to place [p. 24].

In addition to these items which occur in the Ambulation section of the PAR, other gross motor skills are indicated by throwing and catching. Throwing has a mean age of 3.5, and catching, a mean age of 4.0.

Owens and Bowling (1970) factor analyzed the Preschool Attainment Record using the examination of 100 retarded children. They performed

this study to provide an estimate of the internal consistency of the eight measures of the record, the scale as a whole, and to determine the factor structure of the eight subtests. The internal consistency of the scale appeared to be "satisfactorily high" with two factors, a physical-development factor and a social-intellectual factor. This result suggests that the assessment of a child's intellectual and social functioning is but a fraction of the child's overall development which needs explication and perhaps educational attention.

A recently developed Child Development Inventory by Ireton and Thwing (1971) provides another informant-based descriptive technique concerned with, among others, gross motor abilities. The norms for parent description of child behavior are based upon data collected for 810 white, suburban, middle-class children, within eight scales: gross motor, fine motor, situation comprehension, expressive language, verbal comprehension and conceptualization, self-care, personal-social, and general development. The gross motor scale consists of 34 items ranging in difficulty from 5 months to 6 years of age. These items are in the form of statements with which the parent either agrees or disagrees. The items measure the development of physical strength, large muscle coordination, balance-posture, and simple to complex forms of locomotion involving a progressive increase in dynamic balance and coordination. The authors indicate an increase in the abilities assessed with increasing age.

Direct Assessment. The Denver Developmental Screening Test (DDST) of Frankenburg, Dodds, and Fandal (1970) was designed "to meet the need of having a simple, useful tool to aid in the early discovery of children

with developmental problems [Frankenburg et al., 1970, Introduction]." The DDST was constructed from "over a dozen infant developmental tests and preschool intelligence tests [p. 59]." The items used in the test were selected because they required no elaborate equipment, were easy to administer, and had clearly scorable responses. The subtests included assessment of the areas of personal-social, fine-motor adaptive, language, and gross motor development. A total of 1,036 children (aged 2 weeks to 6.4 years) were tested for the standardization of this direct assessment device. The sample included 218 children between the ages of 3 to 5 years.

Test-retest reliability based on tests of 20 children (ages 2 months to 5.5 years) over a period of 1 week showed the percentages of agreement between the first and second performances to range from between 90 to 100% with an average of 95.8%. Inter-rater reliability, based on testing 12 children using four different examiners, showed from 80 to 95% agreement, with the average being 90% agreement. Testing 236 children with the DDST and the Stanford Binet and the Revised Bayley Scale of Infant Tests showed a high degree of agreement between the DDST rating and quotients of the Stanford Binet and Bayley.

Assessment in the Day Care Inventory. Assessment of gross motor skill in the Day Care Inventory called for a brief measure in terms of administration time, one that was appealing to preschool children in the way it was presented and one which would require little or no equipment (i.e., balance beams and other apparatus). The items furthermore had to be of an appropriate difficulty level for children aged 3 to 5 years, offering some easy and some challenging tasks. Four items, balance on one foot, hop on one foot, heel to toe walk, and backward heel to toe walk, were

chosen as representing a range of difficulty suitable for preschool children. Table 10 was abstracted from the Denver Developmental Screening Test. It shows the average ages at which 25, 50, 75, and 90% of the children tested passed the four items. Having to pass particular items implies that there were criteria for each of the tasks; there were, with balancing on one foot being required for 10 seconds or more, hoping on one foot for two or more hops, heel to toe walking for four or more steps, and backward heel to toe walking for more than four steps.

TABLE 10

AVERAGE AGE AT WHICH A GIVEN PERCENT
OF POPULATION PASSES ITEMS
(DDST, 1970, APPENDIX B2)
(Total N = 1,036)

Boys				Item	Girls			
25%	50%	75%	90%		25%	50%	75%	90%
3.3	4.3	4.7	5.4	Balance 1 foot/10 sec.	4.0	4.8	5.4	6.3
3.2	3.4	4.7	5.0	Hops on 1 foot/2+ times	2.9	3.4	3.7	4.2
3.2	3.5	4.3	5.0	Heel to toe walk/4+	3.3	3.6	4.0	4.2
4.2	4.8	5.5	6.3	Backward heel to toe/4+	3.8	4.7	5.7	6.3

In terms of the test-retest and inter-rater reliability of the above test items, it was felt that the figures already cited in this report should be considered as a rough approximation for these particular items, although such data should preferably be based on the present four items alone.

For the purposes of the present assessment, it was also felt that criterion measures, or pass-fail items, would not provide a clear enough picture of the variability among preschool children throughout Pennsylvania.

Therefore, the criteria for passing the items were dropped, and broad guidelines for terminating the tasks were substituted. Since the measure was being developed for relatively untrained examiners, it was felt that the items should be given precise verbal instructions for the examiner to relay to the children along with demonstrations of what needed to be done. The verbal instructions which resulted from frequent revisions after pilot testing with preschool children at The Pennsylvania State University Nursery School can be found in Appendix B.

Visual Discrimination

Growth in the ability to discriminate among sensory stimuli is crucial for a child due to the fact that sensory discrimination is closely intertwined with many other developing skills. Because of the importance of sensory discrimination to a child, we considered assessing several sensory modalities with the Day Care Inventory. However, only one, that of vision, was finally included.

The focus of this measure of visual discrimination is on evaluating the degree to which a child responds to differences between visual stimuli. The tasks used to measure this discrimination tap the child's ability to see two-dimensional forms as alike or different.

Development of Visual Discrimination

The development of visual discrimination has been found to follow certain regular patterns (Mussen et al., 1969; Ausubel & Sullivan, 1970; Werner & Kaplan, 1963; Gibson, Gibson, Pick, & Osser, 1962). Mussen et al.

(1969) point specifically to one pattern as the development of a "greater differentiation and accuracy in visual perception...greater precision in recognizing similarities and differences in physical stimuli [p. 287]." They note two other patterns in the development of visual discrimination, one being a gradual addition of verbal labels to stimuli and the other being an increasing ability to react to the parts of a figure rather than only to its whole.

Although evidence has not specifically shown that all of these patterns are correlated, they seem logically related. For example, though spatial orientation has been studied as a separate entity (Wohlwill, 1960; Blair & Ryckman, 1968), it may also be considered a part of the overall perceptual discrimination process (Fellows, 1968). Likewise, it would be difficult to believe that a child who is able to respond only to global, indifferentiated configurations can at the same time make fine distinctions between letters without specific training.

Research has tended to support claims that age and a child's ability to discriminate are related. One example is the work of Graham, Berman, and Ernhart (1960). They found that differences in children's ability to copy simple forms correlated with age. Their subjects were children between the ages of 2.5 and 5 years. Certain dimensions of the forms gave younger children more difficulty than older children, and there was a gradual improvement in each of these as a function of age and as a function of the specific stimulus and its difficulty.

Gibson et al. (1962) studied the development of the discrimination of letter-like forms and also found age to be a factor. The subjects for this study were children between the ages of 4 and 8 years, and the task

involved matching one of a number of letter-like forms to a standard. Errors declined with age and were dependent on the kind of variation made in the forms. The authors also found that errors on the letter-like forms might be a good predictor of errors with real letters.

Gibson (1963) found that the increasing ability of a child to differentiate his world is also, "at least in part, a result of learning to respond to the distinctive features of objects, phonemes, and so on [p. 186]." The child's growing ability to distinguish the parts of a figure, for example, has been shown through research with young children which utilized the Rorschach test (Meili-Dvoretzki, 1956). Goldman (1962) has even described 3-year-olds as "whole perceivers" who see few details and 4- and 5-year-olds as children who more often notice and comment on the parts of a figure.

Discrimination on the basis of spatial orientation has been found to be difficult for children between the ages of 3.5 and 6.5 years (Blair & Ryckman, 1968). Blair and Ryckman (1968) found no difference in the number of errors made by younger and older groups of children in discriminating such letters as M and W, and Wohlwill's (1960) review of the literature on perception notes that in general young children tend to ignore spatial orientation.

The ETS-OEO Longitudinal Study (1968) used two measures of discrimination, the Stern Position in Space Test (rotations) and the John Hopkins Perceptual Test (configurations), in their battery of tests. The overall theory of discrimination development which resulted can be stated as "from the first rudimentary figure-ground discriminations, perceptual development proceeds into form discriminations and form recognition [p. 191]."

One of the objectives of the ETS-OEO study was the determination of the different levels of perceptual development. The initial description of the study sample indicated "support for the contention that form discrimination is a developing perceptual ability, one that is relatively well established in children by age three...[p. 193]."

Training in Visual Discrimination

Research has not only shown that there are regular changes in the development of the ability to distinguish one form from another, but also that training may speed up the process. Wohlwill (1960) states that the "mechanisms for shape discrimination are functional at an early age, or at least can become so following exposure to a limited amount of specific training [p. 269]." He and Wiener (1964) illustrated this existence of possible early discrimination when they found that, although young children do not usually pay attention to the differences between b and d, a training program of rewards will result in children who will respond to such differences.

Wheelock and Silvaroli (1967) also showed that early discrimination can be trained. For 15 minutes each day for a month they taught kindergarten children to discriminate pairs of capital letters. The children demonstrated significantly better visual discrimination ability at the end of the training period than did children in a control group.

Bogatz and Ball (1971) in a study of the impact of the Sesame Street TV program on children also found positive gains on two tests involving visual discrimination. The tests used to tap this ability were "Matching by Form" and the "Sorting Test." Since the latter also included discrimination on the basis of "function," perhaps only the first was a precise

measure of visual discrimination. However, the group of children who were encouraged to watch the program showed significant gains on both tests.

The Importance of Visual Discrimination in Development

Much research suggests that visual discrimination is related to the child's achievement in reading, spelling, and arithmetic, and to his intelligence test performance. The previously cited study by Gibson (1963) states that visual discrimination problems are related to difficulties in differentiating letters. Katz and Deutsch (1967) found with older disadvantaged children (first, third, and fifth grades) that retarded readers differed from normal ones on perceptual measures which required discrimination between pairs of words that were the same or different. In a follow-up study of children in the third and sixth grades who had been given the Bender Visual Motor Gestalt Test (entailing copying geometric forms) while in kindergarten, Keogh and Smith (1967) found that the test given at these early levels moderately correlated with third- and sixth-grade achievement in reading, spelling, and arithmetic.

Another indication of the importance of visual discrimination is its relationship to standard intelligence test performance. Cohen's factor analytic study (1959) of the Weschler Intelligence Scale for Children with elementary school children describes one component of intelligence as the ability to organize and interpret visually perceived stimuli. The Stanford-Binet Intelligence Scale (Terman & Merrill, 1960) includes a test of visual similarities and differences at several preschool ages. Similarly, the Minnesota Preschool Scale (Goodenough, Maurer, & Van Wagenen, 1940) contains a subtest called Discrimination of Forms which

involves finding a match among geometric forms for the standard which is presented to the child.

Walker's (1969) preschool readiness test and a culture fair intelligence test for preschoolers (John Hopkins Perceptual Test) of Rosenburg, Rosenburg, and Stroud (1966) involve visual, discrimination components which have shown correlation with tests of intelligence. The Walker test consists of 35 visual discrimination items and 15 items related to other abilities. Form A of this test was found to correlate .40 with the Peabody Picture Vocabulary Test, .44 with the Stanford-Binet Intelligence Test, and .68 with the Columbia Mental Maturity Scale. The test of Rosenberg et al., which is entirely a task of matching a standard design to an identical design presented in the context of four alternatives, was found to correlate .70 with the Stanford-Binet, and as high as .76 and .80 respectively with the Peabody Picture Vocabulary Test and the Columbia Mental Maturity Scale.

Measurement of Visual Discrimination in the Day Care Inventory

The measure of visual discrimination selected for inclusion in the Day Care Inventory was a revised form of one previously developed by a member of the Pennsylvania Day Care Study staff (Ridley, 1970). The original Ridley test was based on items in A. E. Ahr's (1968) Screening Test for the Assignment of Remedial Treatments, which is used with children of preschool and kindergarten age. The test proved to be appropriate for the preschool age in that it was nonverbal, relatively brief, and interesting for preschool-aged children. For the Day Care Inventory, the test was further revised by the addition of some items modified after those in the Walker test (1969).

The measure is divided into two parts, Similarities and Differences. Each part includes ten items preceeded by an example. They both have a booklet of 5 x 8 picture cards to be shown to the child. Some examples of the cards are presented in Appendix C.

On each card in the Similarities booklet is a standard and four alternatives, one of which is a duplicate of the standard. Five of the cards have pictures of geometric forms, two depict objects, and three involve animals and birds. The discriminations involved in the items are to be made on the basis of form, size, and position-in-space.

On each card in the Differences part of the measure are four pictures, three duplicates and one different with respect to size, form, or position-in-space. Five of the cards show objects, two have geometric figures, and three depict animals.

With young children, it is important that the concepts of same and different be explained carefully before proceeding with the administration of a test (Hall & Caldwell 1970). The careful wording of our directions to the child and the provision of a sample item prior to each part of the measure represented attempts to familiarize the child with the tasks. If a child failed a sample item, he was shown the correct response, and the reason for its being correct was explained to him.

Social Roles

The Social Roles measure consists of four direct questions designed to gather data on day care children's occupational aspirations and perceptions of certain social roles.

The Occupational Choice Question

The first question pertains to occupational aspiration and includes an inquiry intended to assess the range of occupational choices perceived as accessible and the motivational factors in the preferred occupational choice. The test of the question and subsequent inquiry is as follows:

> A (boy, girl) can be all sorts of things when (s)he grows up. What would you like to be when you grow up?
>
> a. That's very interesting. Maybe you've thought of some other things you could be when you grow up. What else could you be when you grow up?
>
> b. Why do you want to be (S's initial response inserted)?

The occupational choice question was included in the present battery because it offered an opportunity to collect normative data on day care children's vocational aspirations and to make some intragroup comparisons within the day care population.

Review of Literature on the Occupational Choice of Young Children. Research on variables related to occupational choice has provided a great deal of information about this phenomenon in adults. Frequently investigated topics include (a) the relationship between socioeconomic status and occupational choice; (b) rural-urban differences in occupational choice; (c) precipitants of occupational choice, i.e., experiences, as perceived by individuals, which led them to select particular occupational goals; and (d) the phenomena of occupational inheritance.

The vigorous inquiry into vocationally related behavior of adults has not been matched by equivalent work in this area with children and youth. Borow (1966) has proposed that the following factors account for

the comparative lack of research with younger age groups: (a) the assumption that occupational phenomena may be examined only within the setting of work itself and only when explicit, (b) the expediency of using college or secondary school samples, (c) the lack of standardized instruments on occupational variables for subjects below the ninth grade, and (d) child labor laws which effectually preclude the possibility of direct observation of children in the institutional context of work.

It is Borow's contention that:

> ...vocationally relevant behavior...(a) begins in early childhood, (b) is most profitably studied as a developmental process, and (c) can be examined in terms of certain classes of familial, societal and intrapsychic variables [p. 376].

An abbreviated review of some of the occupationally-relevant research findings with younger subjects follows.

Ginzberg, Ginsburg, Axelrad, and Herma (1951) conducted an investigation to test a theoretical model of vocational choice. They based their model on the thesis that making a vocational choice is a developmental process. Ginzberg and his associates employed a cross-sectional approach, utilizing 64 upper middle-class subjects, equally distributed by school grade-level subsamples. The scholastic levels sampled ranged from the sixth grade to the advanced graduate level. A semistructured interview technique was employed to gain relevant data, and an analysis was performed for evidence of age-related stages of thinking about the self in relation to the process of vocational choice. They concluded that the process of occupational decision-making can be divided into three stages: fantasy, tentative, and realistic. The fantasy stage starts at approximately 6

years of age and extends until approximately age 11. Only this stage will be considered in the present review.

Ginzberg et al. reported that during the fantasy period children imagine themselves in adult roles and that the roles selected are a joint function of affective needs and key figures in the environment. The task of vocational selection is not associated with intellectual capabilities or other subjective qualifications, and there appears to be a lack of capacity for consideration of environmental limitations or opportunities. In this stage verbalized occupational preferences seem to reflect occupational stereotypes, and children operate on the assumption that merely naming a vocation assures entry into it. In general, Ginzberg et al. felt that there were no sex differences in the vocational choice-making process during this period.

The Ginzberg study and general theory of vocational stages has been subject to criticism on a number of counts. Borow (1966) has been critical of the small number of women included in the sample and has cautioned against firm conclusions being drawn from Ginzberg's data on stages of vocational development in females. Super (1970) has observed that the data were subjectively analyzed and that they were derived from small and unrepresentative samples from each age group.

Nevertheless, the Ginzberg investigation and theory has had considerable heuristic value and has provided the impetus for much subsequent research on occupationally related phenomena in children. Super (1970) has succinctly summarized the impact of recent research on Ginzberg's original theory. He reports that subsequent studies have tended to confirm the notion that there is a developmental trend toward increasing

realism in occupational preferences but have also suggested that reality factors come into play long before the age of 18 years. Moreover, the sequence of determinants of vocational choice as specified by Ginzberg has not been generally supported, and such factors as interest, capacity, and values have been found to play "more nearly concurrent roles" than Ginzberg attributed to them in his original conceptualization of vocational choice.

O'Hara (1962) conducted a study of the occupational preferences of fourth-, fifth- and sixth-grade males and females within the context of the model of Ginzberg et al. (1951). Analysis of data indicated that boys made more fantasy choices than girls when asked to make a vocational selection. Examination of subjects' reasons for their choices suggested that (a) social experiences provide females with more effectual same-sexed role models and (b) females have enacted certain occupational roles (e.g., mother, teacher, nurse) at an earlier age and thus have a better initial grasp of potential vocations.

Damjan and Makarovic (1968a; 1968b) conducted a large scale investigation of the development of the conception of vocations in a sample of Yugoslavian children. Subjects for the study included 122 males and 129 females enrolled in grades one through eight. Subjects were interviewed initially about their knowledge of and attitude toward parents' profession and later about further aspects of their conception of vocations. Selected findings were (a) all subjects except 10% of the first and second graders had a vocational preference, (b) the number of vocations recalled increased from an average of 5 in grade one to 58 in grade eight, (c) the number of correct namings of parents' professions increased from

30% in grade one to approximately 90% in grade eight, and (d) parents' educational levels had a positive effect on vocational knowledge only in the higher grades.

Tyler (1964) has reported some data on occupational choices of young males in conjunction with a 12-year longitudinal study of vocationally related behavior in a sample of Oregon schoolchildren. Results yielded some evidence that boys who choose careers in science make more masculine vocational choices as first graders than do boys who later choose nonscience fields.

Several investigators have reported data on the relationship between socioeconomic status and the occupational preferences of young children. In general, results of these studies have been conflicting, and the relation between social class and occupational motives at this age level is unclear. In her longitudinal study, Tyler (1964) obtained evidence that few vocationally related differences in interests emerged between children of different socioeconomic status before the eighth grade. On the other hand, some researchers have reported data which suggest that socioeconomic differences may be present in the motivations behind the occupational choices of children of differing social class. Galler (1951) reported that middle-class boys were more likely than lower-class boys to offer reasons for choice based on intrinsic interest and altruism. Maccoby (1962) found some evidence which suggested that middle-class males favored vocations which offered the opportunity to control others and play an authority role, presumably a reflection of middle-class values.

The Social Roles Questions

The three remaining questions in the Social Roles measure relate to

children's perceptions of three social roles: (a) mother's role, (b) father's role, and (c) teacher's role. The text of the questions is as follows:

> What does a mother do? What does a mommy do?
>
> What does a father do? What does a daddy do?
>
> What does a teacher do?

The three social roles questions were selected for inclusion in the Day Care Inventory because they afforded the opportunity to assess day care children's perceptions of several significant figures who presumably have considerable impact on their development.

The significance of children's perceptions in socialization and personality development has been articulated only comparatively recently, considering the amount of literature which has accumulated in both of these fields. In effect, there has been a widespread failure to recognize that it is not simply the behavior of significant others to which the child responds but also his perceptions of the behavior of these others (Dubin & Dubin, 1965). Dubin and Dubin (1965) have contended that children's perceptions constitute a "missing link" in conceptualizations of the impact of child training methods on immediate and/or subsequent personality adjustment. The Dubins' position is reflected in the following excerpt from their review of research on children's social perceptions:

> The one to one relation between parental behavior and child personality has yet to be demonstrated. The missing element in this question seems to be the child himself--his perceptions of and consequent response to parental behavior. Surely a child's perceptions of parents affect what that child does and what he becomes. Furthermore, the assumption cannot be made that an adult's view of parental behavior is identical with a child's. Indeed, this is the classic observer-actor dilemma which particularly haunts child-development research [p. 810].

Review of Literature on Social Perceptions of Young Children. Examination of the literature on children's social perceptions indicates that theoretical and other considerations dictate that functional roles and functioning role characteristics be treated as separate dimensions. Social role is defined as "patterned behavior" that can be (a) described objectively, (b) perceived uniformly by others, and (c) ascribed to a group of individuals (Dubin & Dubin, 1965). On the other hand, functioning role characteristics are behaviors ascribed to individuals in the performance of social roles. Those few investigations which exist on social perceptions of children suggest the following developmental sequence: (a) perception of individual behavior (e.g., spankings), (b) perception of functioning role characteristics (e.g., discipline), and (c) perception of social role as patterned behavior descriptive of a group of people fulfilling a broad social function (e.g., authority holder) (Dubin & Dubin, 1965).

In their review of the literature on children's social perceptions, Dubin and Dubin (1965) reported 16 studies pertaining to children's percepts of parental roles. Only those especially relevant to our investigation will be reviewed here.

Mott (1954), Finch (1955), and Hartley (1960) found evidence that children distinguish between male and female functional roles in society at an early age. Mott asked 8 male and female 4-year-olds and 18 male and female 5-year-olds to draw a picture of "Mother" and describe her. Results indicated that "Mother" was most often seen as "active," engaged in household chores and child care activities. Finch used direct questions (e.g., "What is Mother?; What is Father?"), pictures, and doll play to

to assess the parental percepts of 40 male and female children drawn from professional families. Finch's subjects ranged in age from 3 to 7 years. Analysis of data for "Mother" indicated that 50% of the subjects' responses pertained to household duties and 25% pertained to child care. Results for "Father" indicated that 75% of the subjects' responses fell into the category of economic provider. Hartley obtained results which supported earlier findings that females and mothers are seen as functioning primarily in homemaking and child care, while fathers are seen as engaged in economic activities. Further, Hartley obtained evidence which suggested that when a reversal occurred in role performance, i.e., father performing a role usually performed by mother, it was perceived as "helping" rather than substituting for the other parent.

Piwowar (1966) investigated perceptions of parental roles in a sample of Head Start children. Subjects for Piwowar's study included 31 black males and females between the ages of 4.5 and 5.5 years. Subjects were tested individually and were queried about mother role and father role. The questions used by Piwowar were identical to those selected for inclusion in our Day Care Inventory: What does a father do?; What does a mother do? Responses were categorized according to whether they reflected a realistic or unrealistic perception of parent roles and whether they reflected positive or negative associations about the role occupant. Selected findings are as follows: (a) 100% of the males and 93% of the females gave realistic responses for father role, (b) 88% of the males and 93% of the females gave realistic responses for mother role, (c) a majority of both sexes conceptualized mother role in terms of housekeeping duties and father role in terms of punitive activities, (d) boys

tended to give more responses with negative associations for both role questions than did girls, and (e) mother was perceived more positively than father by both sexes.

Langford (1970) investigated Anglo and black children's perceptions of the female sex role. The Langford study is of particular interest since it addressed itself to racial differences in social perceptions. Subjects included 224 preschool and elementary school children, ranging in age from 4 to 12 years. Subjects were equally distributed by sex and race and were drawn from two kindergartens and five public schools in Texas. Analysis of data indicated that same-sex Anglo and black children did not differ in measures of sex-role preferences. This finding was interpreted by Langford as an indication that perceptual differences between blacks and Anglos are diminishing and/or that the minimal variability observed might be attributable to the diminishing effect of the general social environment on differences in sex-role perceptions. Langford also suggested that his data might reflect a decrease in ethnic differences in child rearing practices.

Dubin and Dubin (1965) have also reviewed literature on children's perceptions of nonparental authority figures. However, only one study was directed expressly to the issue of young children's perceptions of teachers. In brief, Biber and Lewis (Dubin & Dubin, 1965) investigated perceptions of the teacher's role in a sample of 94 first and second grade public school children and 25 first grade private school children. The instrument used by Biber and Lewis involved 13 pictures of classroom situations. Subjects were asked to respond to the pictures in terms of the question, "What will teacher do?" Analysis of data indicated that

the teacher was seen as an adult figure who required obedience and punished disobedience. However, observational evaluation of the actual classroom situation indicated that subjects' percepts did not accurately reflect teacher behavior in the class setting. This finding suggested that children's perceptions of teachers were not mediated by the school atmosphere.

A few studies of children's social perceptions have been addressed to the relation between such percepts and sex and chronological age. The paucity of studies makes generalizing hazardous. However, the literature that does exist suggests that children's social perceptions become more realistic and include more subtle aspects of behavior as chronological age increases and girls perceive others "more favorably" than boys do (Dubin & Dubin, 1965).

Pilot Work

All four of the questions included in the Social Roles measure of the Day Care Inventory were subjected to study for verbal comprehension and general suitability for preschoolers. The questions were administered individually to a sizeable number of males and females drawn from classes of The Pennsylvania State University Nursery School. Inspection of subjects' responses indicated that subjects could cope with these questions and that verbal comprehension was satisfactory.

Social Competence Questions

Social Competence Questions consists of five questions which appear to tap elements of behavior associated with the construct of social competency.

The first question is essentially an inquiry into self-help behaviors in the tradition of such indices as the Vineland Social Maturity Scale (Doll, 1965). The other four questions are primarily comprehension measures similar to those which appear in the Wechsler Preschool and Primary Scale of Intelligence (WPPSI, Wechsler, 1963) and the Wechsler Intelligence Scale for Children (WISC, Wechsler, 1949).

Goldfried and D'Zurilla (1969) have identified three approaches to the definition of competence. One approach has been to define competence as "the sum total of an individual's specific achievements or accomplishments in the various major areas of living within a particular society [p. 155]." In this view competence is construed as equivalent to Phillips and Cowitz's (1953) concept of "social attainment," which connotes that "an individual has achieved...through his own efforts a successful mastery of certain tasks in life [p. 274]."

The second approach identified by Goldfried and D'Zurilla (1969) defines competence in terms of the "presumed internal antecedents of effective behavior, i.e., attitudes, motives, personality dynamics and traits [p. 156]." Thus, Doll (1953) has defined social competence variously as (a) the "functional ability of the human organism for exercising personal independence and social responsibility [p. 10]," (b) "a functional composite of human traits [p. 2]," and (c) "the complex expression of many component aptitudes [p. 25]."

The third approach to competence identified by Goldfried and D'Zurilla is somewhat more operational and emphasizes the "behavior-environment interactions associated with effective functioning [p. 157]." Gladwin (1967) has outlined several aspects of this view of competence:

> First is the ability to learn or to use a variety of alternative pathways or behavioral responses in order to reach a given goal... Second, the competent individual comprehends and is able to use a variety of social systems within the society... Third, competence depends upon effective reality testing. Reality testing involves not merely the lack of psychopathological impairment in perception but also a positive, broad, and sophisticated understanding of the world [p. 32].

As an alternative to the views just outlined, Goldfried and D'Zurilla (1969) have presented a behavioral-analytic model of competence. In the context of the model, effective behavior is defined as:

> A response or pattern of responses to a problematic situation so that it is no longer problematical, and at the same time produces a maximum of other positive consequences and a minimum of negative ones. Such a response (or response pattern) may be motoric, verbal, cognitive, or some combination thereof [p. 158].

Goldfried and D'Zurilla have applied their behavioral analytic model in the construction of a research instrument to assess the social competence of college males. Items included in the instrument entail problem situations likely to be encountered by college males in a college setting. Items for the measure were empirically derived, and the procedure is described in detail in the authors' report of their work (1969). Though the problem situations included were primarily academic, interpersonal, or some combination of the two, the Goldfried and D'Zurilla measure appears to have some elements in common with traditional comprehension tests, which typically include items requiring the individual to state how he would handle various problem situations.

Of the approaches to competence outlined by Goldfried and D'Zurilla (1969), the one which emphasizes specific achievements or accomplishments

has been most frequently used in the field of child development. Thus, measurement of social competence in this field has been conceptualized primarily in terms of check lists or other techniques designed to assess socially desirable achievements. In early childhood those achievements most frequently measured include aspects of dressing, eating, locomotion, and self-direction. A major problem with the achievement approach to competence is that it "focuses more on the...end-products of effective behavior than on the means by which these ends have been achieved [Goldfried and D'Zurilla, 1969, p. 156]." In effect, by concentrating on measurement of rather specific behavioral attainments, child developmentalists have neglected to come to grips with the basic issue of what constitutes effective behavior.

In the Day Care Inventory we have attempted to adopt a more comprehensive view of competence than is reflected in typical measures of social maturity for the preschool child. Thus, Social Competence Questions incorporates elements of both the achievement and the behavior-analytic approach to competence. The instrument includes items assessing mastery of certain developmental tasks on one hand, and items requiring responses to problem situations on the other. In this respect our measure is similar to Wittenborn's (1956) Social Reaction Interview which requires children to describe how they would cope with various problems or tasks in a number of areas. The procedure of asking children to "pretend" or "imagine" the existence of certain problem situations was derived, in part, from Wittenborn's (1956) instrument.

The Self-Help Question

The self-help question calls on the child to describe his own behavior in the area of dressing and would appear to depend in part on the ability to relate experiences and on recent memory. In addition, the question includes an inquiry about performance of specific tasks related to dressing. Thus, the question yields information not only about mastery of tasks related to dressing but about which person(s) in the day care or familial situation is seen as significant sources of assistance in this area. The text of the question and subsequent inquiry is as follows:

Question: Let's pretend you just got up in the morning and want to get dressed. What do you do?

Inquiry: Who puts on your shirt/dress?
Who buttons/zippers your coat?
Who ties your shoes?

The self-help question was included in the Day Care Inventory because mastery of various tasks promoting personal independence has been viewed as an important indicator of children's social maturity. Doll (1953) regards self-help behaviors as one of the "variable aggregates of total (social) maturation [p. 56]." Other aggregates mentioned by Doll include locomotion, occupation, communication, self-direction, and socialization. Doll (1953) observes that the main developments in social competence in early childhood are in the direction of self-help with other facets of development being "subordinate or anticipatory [p. 18]."

The self-help question also relates to a behavioral goal selected with greater than chance frequency by day care operators who responded to an objectives survey (Peters et al., 1972). The text of the objective

as it appeared in the survey was as follows:

> Takes care of his own physical functions
> (grooming, eating, elimination, dressing)

The self-help question is also relevant to another objective selected with greater than chance frequency by survey respondents. This objective, "Describes things in own words," was chosen by both day care operators and experts in early childhood education as an important goal to be achieved in the day care milieu.

Inquiry into self-help behaviors forms an integral part of a number of instruments designed to measure aspects of child development [e.g., The Vineland Social Maturity Scale (Doll, 1965); The Denver Developmental Screening Test (Frankenburg et al., 1970)]. Traditionally, such measures are administered to informants who either rate the child's accomplishments [e.g., The California Preschool Social Competency Scale (Levine, Elzey, & Lewis, 1969)] or who describe the child's accomplishments to an examiner [e.g., The Vineland Social Maturity Scale (Doll, 1965)] who then evaluates the behavior described according to some normative criteria. In the case of young children, the informant or rater is usually the mother or some other adult familiar with the child's behavior. In our Social Competence Questions the informant, of course, is the child himself. This procedure is used standardly by Wittenborn (1956) with his Social Reaction Interview and has been acknowledged by Doll (1953) as a method which can be used with the Vineland, although it is primarily recommended for adults.

The difficulties encountered in using self-report methods with adult populations has received considerable attention in the literature (see Edwards, 1957). These difficulties would seem to be compounded with child populations because there may not only be purposeful dissimulation

but confabulation as well. The possibility of dissimulation occurring in response to the self-help question does not appear to affect its utility as a measure of ability to describe events because accuracy is here subordinate to descriptive facility. However, it is clear that dissimulation will affect our results for specific self-help behaviors, and we would expect our norms for day care children to be somewhat higher than those obtained for other groups where different methods of data collection have been employed.

A good case can be made, however, for the position that when dissimulation occurs in response to our self-help questions, it is indicative of an aspiration toward mastery in the areas tapped. Thus, it is possible to regard the normative data obtained from our day care sample as indicative of either achievement or aspiration toward achievement in the area assessed.

At the same time, our Inventory contains an internal check on response bias in that self-help items are also included on one of our rating scales. This scale, which is described in detail elsewhere in our report (pages 136-139), is completed by center personnel familiar with the subject's behavior in the self-help realm.

Normative Studies. A number of investigators have reported normative data on self-help behaviors. Doll (1953) has reported detailed norms for his Vineland Social Maturity Scale. His standardization sample included 10 male and 10 female white subjects at each age from birth to 30 years. Subjects were selected in such a way that occupational distribution was approximately normal for each age group and for both sexes. Only norms relevant to the self-help question in the Day Care Inventory will be

reported here. The item, "Puts on coat or dress unassisted" occurs at age 2.85 (mean total norm) on the Vineland. Means and standard deviations reported for males and females are as follows: males $\bar{X}$ = 3.10, sd = 1.10; females $\bar{X}$ = 2.60, sd = .75. "Buttons coat or dress" appears at age 3.35. Means and standard deviations for this item are as follows: males $\bar{X}$ = 3.60, sd = .87; females $\bar{X}$ = 3.10, sd = .90. "Dresses self except for tying" occurs at age 4.80 (males $\bar{X}$ = 5.35, sd = 1.50; females $\bar{X}$ = 4.25, sd = .84). Inspection of the data indicates that means for females on all three items are lower than those for males, though none of the differences reached statistical significance (Doll, 1953). The 1965 edition of the Vineland (Doll, 1965) contains no major alterations in the scale and the most significant changes in item formulation are at the adult level.

Frankenburg et al. (1970) have reported norms for the Denver Developmental Screening Test (DDST) for their total sample, males and females and parent occupational groups. The normative sample for the DDST numbered 1,036 normal males and females between the ages of 2 weeks and 6.4 years. Subjects were all residents of Denver, Colorado. The demographic characteristics of the standardization sample approximated those of the Denver population according to 1960 census data. Total sample norms for those DDST items relevant to the self-help questions in the Day Care Inventory appear in Table 11. Norms were calculated in terms of the age at which 25%, 50%, 75% and 90% of the sample passed each item. Ages are given in months, unless otherwise indicated.

TABLE 11

TOTAL SAMPLE NORMS - DDST

AGE WHEN GIVEN PERCENT OF POPULATION PASSES ITEMS

Item	25%	50%	75%	90%
Removes garment	13.7	15.8	19.2	21.9
Dons shoes, not tied	20.1	22.3	2.6 yr.	3.0 yr.
Buttons up	2.6 yr.	3.0 yr.	3.7 yr.	4.2 yr.
Dresses with supervision	2.2 yr.	2.7 yr.	3.1 yr.	3.5 yr.
Dresses without supervision	2.6 yr.	3.6 yr.	4.1 yr.	5.0 yr.

Norms for males (N = 543) and norms for females (N = 493) for the same DDST items are shown in Table 12.

Occupational group norms are also given for the DDST; they appear in Table 13.

Pilot Work. The self-help question which appears in the Day Care Inventory was administered to small samples of male and female preschoolers in order to ensure that wording was suitable for this age group. Subjects were drawn from nursery school classes at The Pennsylvania State University Nursery School. All subjects were between the ages of 3 and 5 years and came from primarily middle-class backgrounds. Inspection of the data indicated that the children could deal adequately with the self-help question, and verbal comprehension appeared satisfactory. However, we also found that subjects frequently responded with proper names and that further inquiry was sometimes necessary to fully identify sources of aid. Thus, in our field work examiners were instructed to conduct an inquiry when subjects responded with proper names.

TABLE 12

MALES-FEMALES NORMS - DDST

AGE WHEN GIVEN PERCENT OF POPULATION PASSES ITEMS

Item	Males				Females			
	25%	50%	75%	90%	25%	50%	75%	90%
Removes garment	14.2	15.9	20.5	22.1	12.8	15.9	19.0	21.3
Dons shoes, not tied	20.6	24.0	2.8 yr.	3.0 yr.	19.6	21.4	23.2	2.7 yr.
Buttons up	2.8 yr.	3.2 yr.	3.7 yr.	4.3 yr.	2.2 yr.	2.8 yr.	3.5 yr.	4.2 yr.
Dresses with supervision	2.2 yr.	2.7 yr.	3.1 yr.	3.5 yr.	2.2 yr.	2.6 yr.	2.9 yr.	3.4 yr.
Dresses without supervision	2.4 yr.	3.5 yr.	4.2 yr.	4.5 yr.		3.1 yr.	3.8 yr.	5.0 yr.

TABLE 13

PARENT OCCUPATIONAL GROUP NORMS - DDST

PERSONAL-SOCIAL

AGE WHEN GIVEN PERCENT OF POPULATION PASSES ITEMS

Occupation Group 1 (Professional); 2 (Managerial); 3 (Salesmen)					Occupation Group 4 (Craftsmen) 5 (Unskilled laborers, service workers, unemployed)			
25%	50%	75%	90%	Item	25%	50%	75%	90%
13.3	14.9	19.7	21.5	Removes garment	13.5	16.9	20.0	22.2
	23.0	2.6 yr.	3.0 yr.	Dons shoes, not tied	17.8	21.6	2.5 yr.	3.0 yr.
2.6 yr.	3.0 yr.	3.6 yr.	4.3 yr.	Buttons up	2.5 yr.	3.0 yr.	3.7 yr.	4.0 yr.
	2.7 yr.	3.0 yr.	3.3 yr.	Dresses with supervision	2.4 yr.	2.7 yr.	3.1 yr.	3.8 yr.
	3.5 yr.	4.1 yr.	4.9 yr.	Dresses without supervision		3.6 yr.	4.0 yr.	5.2 yr.

The Social Comprehension Questions

Three of the social comprehension questions require the child to describe how he would handle certain problem situations which he may actually have experienced in his encounters with his environment. The fourth question requires the child to verbalize his perception of the reason for an important facet of social functioning. The text of the four social comprehension questions is as follows:

> Let's pretend that you were playing and your toy broke. What do you do?
>
> Let's imagine that you cut your finger. What do you do?
>
> Imagine that a child much smaller than you are starts to fight with you. What do you do?
>
> Why do people have to work?

The comprehension questions were included in the Day Care Inventory for a variety of reasons. The first three questions with their emphasis on problem situations appear relevant to Goldfried and D'Zurilla's (1969) conceptualization of social competence outlined earlier. Further, these questions are relevant to one of the objectives selected with greater than chance frequency by day care operators who responded to an objectives survey (Peters et al., 1972). The text of the objective as it appeared in the survey is as follows:

> Attempt to overcome obstacles by himself (get more paper if he runs out, try to fix own toy).

The fourth comprehension question was included primarily because it offered an opportunity to collect descriptive data on day care children's perceptions of the reasons why people work. Such data is of

particular interest to us since the issue of the working mother is especially relevant to day care. Thus, a further function of the comprehension question was to provide data for an analysis by frequency of the content of children's responses.

Previous researchers (e.g., Wechsler, 1958) have contended that the content of responses to comprehension questions can yield important information about the respondent's perceptions and values. The clinical utility of comprehension measures has been elaborated by Wechsler (1958). While it was not our intent to attempt any clinical judgments of day care children, we felt that examination of response content might add to our understanding of this population.

Review of Related Literature. Comprehension tests and individual items appear in a number of measures of cognitive functioning for both adults and children. Such items are represented in the Stanford-Binet, Form L-M (Terman & Merrill, 1960), beginning at the III-6 level and are included in the language section of the Denver Developmental Screening Test (Frankenburg et al., 1970). The Wechsler Adult Intelligence Scale (WAIS; Wechsler, 1955), the Wechsler Intelligence Scale for Children (WISC; Wechsler, 1949), and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI; Wechsler, 1963) each contain an entire subtest devoted to comprehension items.

In general, comprehension measures have been found to correlate highly with both verbal and performance scores and with total scores on tests of intellectual ability. However, apart from the fact that performance on this type of item is substantially related to performance on intelligence tests, comparatively little data exists on factors contrib-

uting to success on comprehension questions. Wechsler (1958) has offered some sketchy observations about the comprehension measure which appears in the WAIS:

> Precisely what function the Comprehension Test involves is difficult to say. Off hand it might be termed a test of common sense... Success on the test seemingly depends on the possession of a certain amount of practical information and a general ability to evaluate past experience [p. 68].

No further comments are offered either in the WISC manual (1949) or the WPPSI manual (1963).

In effect, then, information about social comprehension measures is confined primarily to reports of intercorrelations with other measures of intellectual ability. Wechsler has reported such correlations for all three of his indices; only those for the WPPSI will be reported here since these are the most relevant to our investigation. WPPSI results are particularly germane to our investigation because it is a test especially designed for preschool children, and three of the WPPSI comprehension items are similar to those which we employed in the Day Care Inventory.

Data pertaining to the WPPSI Comprehension Test is based on the performance of subjects employed by Wechsler in his standardization population. In brief, the WPPSI was standardized with a sample of 100 males and 100 females drawn from six age groups, ranging by half-years from 4 through 6.5. Proper representation of various groups within the general population was achieved by reference to reports of the 1960 United States Census. The variables which governed stratification of the

sample are as follows: (a) age and sex, (b) geographic region, (c) urban-rural residence, (d) color (white vs. nonwhite), and (e) father's occupation.

Wechsler (1963) reported that the average reliability coefficient for the Comprehension Test based on computation of odd-even coefficients for all six age groups was .81. The reliability coefficients ranged from .78 at years 4, 5 and 6.5 to .84 at year 5.5. Wechsler also reported coefficients of stability for the Comprehension Test based on the records of 50 children between the ages of 5.25 years and 5.75 years with a mean test-retest interval of approximately 11 weeks. The coefficient of stability for this sample for the Comprehension Test was .69. The estimated stability coefficient for the standardization sample was .71.

Wechsler (1963) also reported intercorrelations of the 11 WPPSI subtests based on scores of the six age groups represented in the standardization sample. The average intercorrelations of the comprehension measure with other measures in the WPPSI were as follows: Information, .60; Vocabulary, .57; Arithmetic, .51; Similarities, .55; Sentences, .53; Animal House, .34; Picture Completion, .42; Mazes, .33; Geometric Design, .36; and Block Design, .39. The average correlation of the comprehension measure with the WPPSI verbal score was .69 and with the performance score was .50. The average correlation coefficient with the WPPSI full scale score was .65.

In addition, Wechsler (1963) examined the relationship between the WPPSI and three other tests of intellectual ability: the Stanford-Binet Intelligence Scale, Form L-M (Terman & Merrill, 1960); the Peabody Picture

Vocabulary Test, Form A (Dunn, 1959); and the Pictorial Test of Intelligence (French, 1964). Subjects for this study included 98 children between 60 and 73 months of age drawn from a school district in San Jose, California. Analysis of data showed that the Comprehension Test correlated .58 with scores on the Stanford-Binet Form L-M, .45 with the Peabody Picture Vocabulary Test (Form A) and .45 with the Pictorial Test of Intelligence (Deviation IQ).

Pilot Work. Comprehension questions similar to those which we selected for our Inventory have been used successfully with preschoolers by other psychometrists (e.g., Wechsler, 1963). Thus, extensive piloting for our measure appeared unnecessary. However, the WPPSI (1963) extends down to the 4-year level only, and, since we expected to include some 3-year-olds in our day care sample, we felt that some pilot work with younger subjects would be appropriate. Subjects used in our pilot work included small samples of 3- and 4-year-old males and females drawn from classes at The Pennsylvania State University Nursery School. Two questions, in addition to those finally selected for the Day Care Inventory, were administered individually to all subjects. The two additional questions were as follows:

Suppose you get hungry. What do you do?

Suppose your hands are dirty. What do you do?

Inspection of subjects' responses indicated that most 3-year-olds could cope with these questions, and verbal comprehension appeared satisfactory in most cases. However, the questions about getting hungry and dirty hands seemed to produce the least variability in response content and were almost invariably answered with "wash them" or "eat

something." These questions were therefore dropped.

Self-Concept Measures

Wylie has presented an historical review of the interest in self-referent constructs in her report on self theory in Borgatta and Lambert's Handbook of Personality Theory & Research (1968). She observes that there has been little consistency among theorists in defining constructs concerning the self and that even individual theorists often include several disparate ideas under one "self"-referent label (p. 728). Traditionally, definitions of self have been classified into those which refer to self as agent or doer and those which refer to self as the object of the person's own knowledge and evaluation (English & English, 1958). This dichotomous classification has proven inadequate. Wylie (1968) presents what is in essence a generic definition of self-concept based on a synthesis of the recurrent elements in theorists' definitions of self-referent constructs. A listing of the elements comprising her generic self-concept can be found in her review (1968).

The literature in the field of child development and child clinical psychology emphasizes that a child's self-perceptions are crucial factors in the development of a healthy personality and the actualization of potential (Jourard, 1964). Law, Moffitt, Moore, Overfield, and Starks (1965) assert that:

> A positive self-image forms the very basis of democratic group living, for it is only as individuals attain a reasonable degree of self-confidence that they are freed to build positive relationships toward others [p. 3].

Shipman (1970) in a review of studies of self-concept in young disadvantaged children concludes:

> ...results of studies on self-concept in disadvantaged children seem to suggest (that) self concept is correlated with cognitive performance, academic achievement and interpersonal relationships -- all vitally related to the child's functioning in a school environment.... [p. 177]

Woolner (1966) has pointed out that learning about oneself is an important aspect of the learning process and should thus be taken into account in the construction of school curricula. Woolner particularly emphasizes the necessity for instruction about the self in early childhood and stresses that the preschool child's self-perceptions should be a focal point for program planning.

The objectives survey (Peters et al., 1972), which was designed to obtain information about the goals of day care, provided little clear input for decisions regarding assessment in the "Understanding of Self" area. Only three items in this area were selected with greater than chance frequency, and none of the items chosen related to self-concept. However, the consensus of the literature, that self-concept is a crucial component of almost every facet of child development, led us to feel that the self-perceptions of day care children represented an important domain for investigation. Thus, we decided that some self-concept measures should be included in the Day Care Inventory.

Although a great many studies have been published which deal with self-concept in later childhood and adolescence, comparatively little firm research has been done on self-concept in early childhood. Lack of

research with this age group is partly a function of the special measurement problems posed by preschool children. In addition to the limitations imposed by verbal comprehension, there is some suggestion that certain assessment techniques may yield spurious results due to stress-induced memory lapses and regression (Engel and Raine, 1963).

The nature of self-concept in early childhood also makes measurement difficult. Minuchin (1968) and Bartlett (1969) have both observed that self-concept during this developmental period is evidently unstable. Shipman (1970) and Gish (1971) have reported evidence which suggests that at least some aspects of the preschool child's self-concept are situationally and/or temporally specific.

In approaching the assessment problem, we elected first to examine techniques used by previous researchers with early and middle childhood samples. Selected research findings on the self-concept of children appear in the following summary table (Table 14).

Review of Techniques for Self-Concept Assessment During Early and Middle Childhood

Three techniques have emerged as traditional modes of assessing self-concept in adult populations: (a) the Q-sort, (b) rating scales, questionnaires, and adjective check lists, and (c) projective tests. A review of measures of self-concept in adults is contained in Wylie (1968).

The Q-sort method requires sorting self-referent statements to fit a pre-arranged frequency distribution (forced sort) with "most like you" and "least like you" defining the extremes. The Q-technique is clearly inappropriate for most younger age groups in that it demands verbal and

TABLE 14

SUMMARY OF SELECTED RESEARCH FINDINGS ON
SELF-CONCEPT IN EARLY AND MIDDLE CHILDHOOD SAMPLES

Study	Sample Size	Sample Description	Measuring Instrument	Findings
Engel and Raine (1963)	29	B&G $\bar{x}$ = 8.42 yrs.	Where Are You Game	Identification of two factors accounting for over 50% of the variance: Factor I: Quality of Interpersonal Relationships; Factor II: Highly Valued Personal Attributes.
Piers and Harris (1964)	363	B&G Grades 3, 6, 10	Piers-Harris Self-Concept Scale	Reported self-concept of third and tenth graders significantly higher than sixth graders; no consistent sex differences observed.
Dreyer and Haupt (1966)	32	B&G Kindergarten	Structured Doll Play	Children with more autonomous self-evaluations manifested more independence, achievement and affiliative behaviors.
Woolner (1966)	77	B&G 5-year-olds; university school vs. private school vs. no school experience	Preschool Self-Concept Picture Test	Boys tended to see themselves as passive and strong, and girls viewed themselves as active and strong; type of kindergarten experience tended to alter self-attitudes; kindergarten experiences altered ideal self-concepts more than self-concepts.

TABLE 14 (Con't.)

SUMMARY OF SELECTED RESEARCH FINDINGS ON

SELF-CONCEPT IN EARLY AND MIDDLE CHILDHOOD SAMPLES

Study	Sample Size		Description	Measuring Instrument	Findings
Minuchin (1968)	18	B&G	Headstart black 4-year-olds	Mirror Games; Drawing of the Self	Self-image scores derived from drawings correlated .96 with Goodenough-Harris standard scores; level of self-integration and differentiation as measured by self-drawings was significantly related to exploratory behavior.
Carpenter and Busse (1969)	80	B&G	Black and white first through fifth graders from welfare families	Where Are You Game	Girls were more negative in self-concept than boys; fifth graders were more negative in self-concept than first graders; no overall racial differences obtained.
Soares and Soares (1969)	514	B&G	Grades 4 through 8. Advantaged vs. disadvantaged	Self-ratings on 20 pairs of bi-polar traits	Disadvantaged children reported higher self-perceptions than advantaged children; advantaged girls tended to have higher self-percepts than advantaged boys; disadvantaged boys tended to have higher self-percepts than disadvantaged girls.
Bartlett (1969)	35	B&G	4 years to 5 years 2 months	Self-Concept Picture Inventory	Self-concept scores showed no relation to scores on a measure of role-taking ability.

TABLE 14 (Con't.)

SUMMARY OF SELECTED RESEARCH FINDINGS ON

SELF-CONCEPT IN EARLY AND MIDDLE CHILDHOOD SAMPLES

Study	Sample Size		Description	Measuring Instrument	Findings
Shipman (1970)	circa 1,857	B&G	Headstart vs. no school vs. other preschool programs; 42-59 months	Brown IDS Self-Referents Test	Self-concept scores were predominantly high and the distribution markedly skewed; slight variability obtained among different age, site and preschool categories; no significant differences were found between male and female self-concept scores; males showed a greater tendancy to refuse or give indeterminate responses.
Gish (1971)	31	B&G	x = 50 months; PSU vs. Montessori nursery schools	Thomas Self-Concept Values Test	Type of nursery school program was unrelated to pre- and postmeasures of self-concept.
Ozehosky and Clark (1971)	1,042	B&G	Kindergarten	U-scale	Congruence between teacher's ratings of two criterion groups supported U-scale validity and cast doubt on the validity of sentence completion self-concept measures.

numerical skills beyond their developmental level. Further, Engel and Raine (1963) have suggested that the Q-sort may be anxiety-producing for children and, in combination with the relative instability of self-report of self-percepts in early childhood, may yield spurious results. Modified adjective check lists and other self-rating methods have been used with varying success with preschool and elementary populations as have several projective techniques.

Adjective Check Lists and Other Self-Rating Methods. Engel and Raine (1963) developed an instrument called the Where Are You Game for use in assessing self-concept in elementary school children. The Where Are You Game consists of seven bi-polar dimensions thought to be important in self-concept. The dimensions are: smart, happy, well-liked, brave, attractive, strong, and obedient. The child is asked to rate himself on each dimension on a five-point scale in the form of a vertical "ladder." Stick figures are positioned at the top and bottom of the "ladder," and the examiner describes the attributes of the figures to the subject before asking him to indicate his own position on the scale. Analysis of data for a restricted sample of third-grade children yielded seven factors, two of which accounted for over 50% of the variance. These factors were quality of interpersonal relationships and personal attributes. The authors reported a reliability coefficient estimate of .60 for the Where Are You Game based on correlation of the seven self-concept scores with total score.

In a study of self-perception in culturally disadvantaged fourth through eighth graders, Soares and Soares (1969) described development of a self-concept measure consisting of 20 pairs of bi-polar traits.

Traits were expressed in sentence form, and poles were separated by four intervals. Subjects were asked to rate themselves on whether they were "very" or "more" like the positive than the negative trait or vice-versa. The authors reported pilot work indicating that the measure was appropriate for the age groups studied from the standpoint of verbal comprehension. Data on the reliability and validity of the instrument were not given.

Shipman (1970) used a variant of the self-rating technique to study self-concept in her ETS-Head Start longitudinal study. The instrument employed in this investigation was the Brown IDS Self Referents Test (Brown, 1966), purportedly useful in assessing self-concept in preschoolers. The Brown test requires that a full-length colored Polaroid photograph be taken of the child. The child is then asked to identify the photograph and is queried on his perception of himself, with reference to the picture, in relation to 14 bi-polar adjectives. The child may also be asked how he believes significant others perceive him. All items are presented in an "either-or" format. The complete test yields a "self-as-subject" score, a "self-as-object" score, and a score for each referent about whom the child is queried. In conjunction with her data analysis, Shipman (1970) reported a KR-21 reliability coefficient for the "self-as-subject" score of .71. Correlations for each item with the total score ranged from .48 to .73.

Gish (1971) used the Thomas Self-Concept Values Test (Thomas, 1969) to investigate self-concept in preschoolers enrolled in two types of nursery school programs. The Thomas Self-Concept Values Test is almost identical in format and procedure to the Brown test and was also designed for preschool samples. As in the Brown test, a color polaroid photograph

is taken, and the child is asked to indicate his self-perceptions in terms of 14 sets of bi-polar adjectives. He may also be queried about his perceptions of significant others' views of him. Gish (1971) reported that Thomas (1969) obtained a test-retest coefficient of .78 for total score on his test and a coefficient of internal consistency of .73.

Limitations of Adjective Check Lists and Other Self-Rating Methods With Early Childhood Populations. Reports of adjective check lists and self-rating approaches to self-concept assessment in childhood contain little data on the reliability and validity of the instruments described. Moreover, even if the psychometrist "looks the other way" on these issues, adaptation for use with preschoolers poses formidable problems. Some of these problems have been outlined earlier.

Another basic but seldom-raised issue is whether children in this age range can comprehend scaling. In an effort to determine whether preschoolers could cope with a scale containing several intervals, we conducted a small pilot study with self-referent adjectives, presented in sentence form. Results were generally disappointing. When the socially desirable end of our "scale" was presented first, subjects tended to respond immediately without waiting to hear the remaining alternatives. Repetition of the entire item was often necessary and had a negative effect on rapport. We concluded that oral presentation of a self-rating type of scale was not satisfactory for preschool groups.

Carpenter and Busse (1969) used the Where Are You Game (Engel and Raine, 1963), which involves a 5-point scale, with first grade children. It should be noted, however, that the results obtained were markedly skewed.

The skewness of their data may be a function of the inappropriateness of the device for young children.

The Brown IDS Self-Referents Test (Brown, 1966) and the Thomas Self-Concept Values Test (Thomas, 1969) avoid some of the drawbacks of conventional self-rating methods and were specifically designed for preschoolers. However, both Shipman (1970) and Gish (1971) have raised questions about the appropriateness of these measures for young children. Shipman (1970) pointed out that data on children between the ages of 3 years 6 months and 4 years 6 months indicated that they have difficulty understanding the difference between self and other referents. Further, Shipman's data analysis for the Brown test suggested the confounding of a verbal comprehension factor, most likely for those items where a quantitative element was involved. Shipman also observed that subject's responses to some items seemed strongly influenced by situational determinants, e.g., whether the subject happened to smile when the Poloroid picture was taken. Finally, Shipman noted that some investigators have found evidence suggesting that self-percept responses to pictorial stimuli may not be the same as those made to verbal material encompassing identical content.

Gish (1971) reported that her nursery school sample was generally unable to cope with the other-referents aspects of the Thomas test despite elaborate coaching. She also found that subjects' responses to the items, "clean-dirty" and "well-sick" were often temporally specific. Gish also noted a serious problem in the sex differential scoring for the items "big-little" and "weak-strong." A reply of "big" and "strong" was scored positively for boys but negatively for girls, despite the fact that "bigness"

and "strength" would seem to be positive attributes for both males and females at the preschool level and possibly even beyond. Gish concluded:

> Although this test (The Thomas) is reportedly for children ages 3 to 9, it seems inappropriate for young children who have only begun the enculturation process, who have a present time perspective, who reason in a specific-to-specific fashion rather than drawing generalizations and who cannot take another's point of view [pp. 184-185].

Projective Techniques. The three projective methods used most often to study the self-concept of children are (a) analysis of drawing, (b) analysis of behavior in structured and semi-structured play situations, and (c) analysis of responses to projective tests. Those projective tests reviewed in our report were chosen for inclusion because they are less known than some of the more familiar measures, such as the Rorschach inkblots.

Minuchin (1968) used several measures of self-image in a study designed to investigate correlates of curiosity in disadvantaged children. One method employed by Minuchin was a variant of the Goodenough-Harris Draw-A-Man Test (Harris, 1963). Subjects were given a sheet of paper and asked to draw a picture of themselves. Drawings were then ranked according to the impression they conveyed of a differentiated human form. This method was based on the assumption that a child's drawing of himself reflects the extent to which he has progressed in differentiating himself from the environment. It is thus an indicator of differentiation of self-image. Minuchin (1968) reported that inter-rater agreement on the D-I score (differentiated-integrated image) was .97. Minuchin also reported a coefficient of .96 between rankings of D-I scores and Goodenough-Harris standard scores. The size of this coefficient suggests that performance

on this drawing measure is highly related to intellectual ability.

Dreyer and Haupt (1966) used a structured doll-play situation to measure self-appraisal of competence in kindergarten children. Five social and nonsocial problem situations dealing with competition, independence, and response to frustration were presented to subjects through a combination of verbal instructions and manipulation of dolls. The subject was then asked to show how he would deal with each situation using the dolls as a medium. In addition, each child's nursery school teacher indicated on a rating scale how she believed the child would handle these same situations. The entire procedure yielded three scores: (a) a child competence index, (b) a teacher competence index, and (c) a discrepancy score derived from subtracting the child index from the teacher index.

Several questions arise regarding the rationale on which Dreyer and Haupt's (1966) measure of self-appraisal of competence is based. In the first place, a distinction must be made between actual competency and perceived competency. In socring for competence, Dreyer and Haupt assume that the child who does not resolve the situational problem "by his own effort [p. 187]" appraises his self-competency negatively. In effect, the authors have assumed that the preschool child evaluates help-seeking behaviors negatively and devalues his own competency when he resorts to this method for resolving problems. Since there is no evidence for this assumption, the validity of the authors' structured doll play as a measure of self-appraisal of competence is doubtful.

In 1966 Woolner published a semi-projective test designed to assess both the self- and the ideal self-concept in young children. The Pre-

school Self-Concept Picture Test (PS-CPT; Woolner, 1966) is a nonverbal measure consisting of four "separate but comparable" pictorial subsets for black and Caucasian boys and girls. Each subset consists of ten plates. Individual plates have pairs of pictures, one depicting a positive characteristic and the other a negative characteristic. Characteristics were chosen for inclusion on the basis of the author's judgment of traits particularly relevant to the preschool population. Woolner (1966) states that no special preparation is necessary for administration of the PS-CPT and no special scoring skills are required. In addition to yielding a score for self- and ideal self-concept, the PS-CPT also yields a score for amount of self-satisfaction or dissatisfaction. This latter score is obtained by comparing the degree of agreement between the child's self-concept and ideal self-concept.

In the PS-CPT Manual, Woolner (1966) cites several studies designed to gather data on the test's reliability and validity. The following evidence is cited in support of PS-CPT validity: (a) a sample of emotionally healthy children saw themselves as having more positive characteristics (as measured by the PS-CPT) than a sample of emotionally disturbed children and (b) correlations of PS-CPT scores and Draw-A-Man self-concept scores approached significance. Evidence cited in support of PS-CPT reliability included test-retest coefficients in the .90's for a sample of children tested with the PS-CPT on three separate occasions.

Ballif and Adkins (1968) published a measure entitled Gumpgookies which purportedly taps several factors relevant to self-concept in young children. The Gumpgookies test is a semi-projective device consisting of 75 different pictorial plates. Imaginary figures called "gumpgookies"

are presented on each plate and are described by the examiner as having various interests and attributes. The subject is then asked to designate "his" gumpgookie, i.e., the one that follows him and does what he does. The subject may indicate his choice either by marking it on his record form or by pointing. Factor analysis of the Gumpgookies test yielded five tentative factors: (a) general constructive activity, (b) self-evaluation, (c) optimistic self-confidence, (d) persistence, and (e) work enjoyment (Butler, Gotts, Quisenberry, & Thompson, 1971).

Limitations of Projective Techniques With Early Childhood Populations. Analyses of drawings and behavior in play situations possess certain advantages over other modes of approach to self-concept assessment in that they reduce the problem of verbal comprehension to a minimum. On the other hand, both of these techniques have little proven validity as research tools for self-concept measurement in young children. Drawing analyses are particularly vulnerable because correlational work has suggested that they are highly related to conventional intelligence measures. While this relation need not mean that drawings do not measure self-concept, it has not been consistently demonstrated that drawings are more highly associated with self-concept measures than with intelligence tests. Analysis of behavior in play situations has often proven useful as a source of information about children's self-perceptions in a clinic setting. However, the translation of clinical judgment into objective scoring criteria suitable for research has not been notably successful.

The use of projective techniques to measure self-concept in early childhood also entails a number of drawbacks. In addition to the usual

issues raised regarding the validity and reliability of this type of instrument, there is some suggestion that the demands imposed may be too great for young children. For example, Engel and Raine (1963) have suggested that the stress induced by certain projective measures may interact with the instability of young children's self-reports to produce spurious results. Most projective tests also require a considerable level of sophistication for interpretation. The necessity for highly trained scorers further reduces the usefulness of projective tests for research on self-concept in children.

Conclusions. Review of existing techniques for the measurement of self-concept in early childhood suggests that available instruments are not satisfactory. Thus, we elected to try to develop our own measures for the assessment of self-referent constructs in our day care sample. A description of these instruments together with theoretical considerations and the pilot work entailed in their construction follows.

Who Likes You?

It was pointed out earlier in this report that much evidence in the literature supports the position that the self-concept is not stable across situations or even during brief periods of time in early childhood. In our assessment efforts we elected to attempt a developmental approach to the problem of measuring self-referent constructs. That is, self-referent constructs were construed as moving through a series of developmental stages, and it was these stages which were the foci of assessment. The Who Likes You? measure is a direct question related to the development of self-esteem in preschool children. The text of the question is as

follows:

> Tell me who likes you. Tell me as many people as you can who really like you.

Wylie (1968), in her examination of the present status of self-theory, observed that the most commonly studied aspects of the conscious self-concept are those which might be classed under the generic term, self-regard. These aspects include self-satisfaction, self-acceptance, self-esteem, self-favorability, congruence between actual self-concept and ideal self-concept, and discrepancies between actual and ideal self-concept. Wylie (1968) goes on to point out that these terms are not synonymous and that indiscriminate usage has led to confusion in the literature. A consideration of these problems in definition is beyond the scope of the present report. However, for purposes of clarification we used the term self-esteem to denote valuing and liking oneself.

Who Likes You? is based on the thesis that self-esteem derives, at least in part, from perceiving oneself as liked and esteemed by others. In effect, we are assuming that one's perception of being liked (or disliked) preceeds self-liking and that, prior to the emergence of a consistent level of self-esteem, the child must receive feedback about his liability from significant others in his environment. It is our contention that level of self-esteem is complexly determined and may represent the interaction of various feedback dimensions such as amount, content, and consistency with dimensions of the feedback source(s). Who Likes You? should be regarded as an initial effort to describe some of these dimensions in our day care sample.

The Who Likes You? measure provides information about several factors

associated with a child's self-esteem. In the first place, the question gives some indication of whether the child perceives himself as being liked. In many instances failure to respond positively reflects the child's feeling that he is not liked or does not feel liked. Such a feeling may be attributable either to a realistic appraisal of how others feel, lack of feedback from others about their positive feelings, or to misinterpretation of others' behaviors. In a few instances, of course, failure to respond may mean that the child has not understood the question or is unable to verbalize sources of perceived esteem. Although at this point we are not able to determine which of the factors mentioned may be responsible for inadequate response in individual cases, we feel that lack of response is indicative of a deficit condition which might be remedied through individual attention or revision of program emphases.

Who Likes You? also provides an opportunity to gather data about who day care children perceive as significant sources of positive regard. In addition to the usual sources of esteem available to preschoolers (e.g., parents, siblings, relatives), the day care child has other potential sources of esteem in center personnel and peers enrolled in his day care program. The day care child's response to Who Likes You? affords the opportunity to determine whether day care figures are perceived by him as providing significant input in this area.

Finally, Who Likes You? yields information about the number of persons who the child perceives as sources of positive regard. It was pointed out earlier in this report that self-esteem is complexly determined and that many variables may interact to influence self-esteem in the preschool child. Thus, while the number of persons cited in response

to our question may be related to level of self-esteem, we cannot assume a simple one-to-one relationship. It should also be noted that, at the preschool level, the number of persons cited may also be affected by verbal fluency and memory factors. At this stage in our research it therefore appears wisest to regard data from this aspect of the measure as being primarily descriptive in character.

Prior to administration of the Who Likes You? question to our day care sample, some informal pilot work was conducted in order to ensure that the wording was suitable for preschool children. Subjects for the pilot study included small numbers of middle-class males and females between the ages of 3 and 5 years. Results indicated that subjects could deal adequately with this question, and verbal comprehension was good. However, we also found that subjects frequently responded with proper names and that an inquiry was often necessary to allow full identification of significant others seen as sources of esteem. Thus, in our field work examiners were instructed to conduct an inquiry when subjects responded to the question with proper names.

Good Person and Bad Person Measures

The Good Person and Bad Person measures are both direct questions designed to gather descriptive data on formative aspects of preschoolers' ideal self-concepts. The Good Person question attempts to tap elements comprising the positive pole of the self-ideal, while the Bad Person question represents an effort to tap elements comprising the negative pole. The text of the questions is as follows:

> Now I have another question for you. Let's think about what a good person does. We all try to be good people, don't we. What does a good person do?

> Now here's another question for you. We all try not to be bad people, don't we. What does a bad child do?

The Good Person and Bad Person questions were also expected to yield data on the contribution of day care personnel to day care children's conceptions of good and bad behavior and attributes. Wylie (1968) has noted that most theorists seem to imply that acquisition of an ideal self-concept is primarily a matter of reinforced social learning. Obviously, such learning occurs in the day care milieu and intra-day care comparisons could furnish important information on significant variables of interest in the field.

Common to most self theories is the postulation that self-concept includes both evaluative and cognitive aspects (Wylie, 1968). The evaluative aspects derive from an assumed division of self-concept into an actual self-concept and an ideal self-concept. Wylie has pointed out that there is a need for theorists and researchers to conceptualize the ideal self as a separate classification and to recognize the necessity of subdividing this construct into ideals the person has for himself and ideals the person perceives others to have for him. Good Person and Bad Person appear to tap primarily the latter, at least at the preschool level.

Two factors were instrumental in development of the Good Person and Bad Person measures. One factor was the accumulation of evidence that efforts to assess self-concept in the preschool years had not been successful. Throughout our literature review we were impressed by the issue of whether a stable self-concept exists in this age group. Some researchers (e.g., Minuchin, 1968; Bartlett, 1969) have taken the position that one does not, and findings that children's responses regarding self-referents

are often temporally or situationally specific reinforce this position. Moreover, all existing instruments appear unsatisfactory for our purposes for one reason or another.

Some preliminary pilot work, which we conducted ourselves, using direct questions was equally unsatisfactory. Several direct questions designed to tap self-concept were administered informally to 3-, 4- and 5-year-old males and females from primarily middle-class professional families. Two of the self-concept questions used in our pilot work were as follows:

> What are the best things about you? Tell me things about yourself that you really like.
>
> What don't you like about yourself? Tell me things about yourself that you don't like.

Inspection of the data suggested a general failure to comprehend what was asked for in the questions. The latter question often elicited responses about disliked activities rather than disliked attributes. The former generated many personal possession responses due apparently to subjects' focusing on the word, "things." Additional pilot work with alternate wordings was unsuccessful.

The second factor which influenced development of the Good Person and Bad Person measures was our conviction that the ideal self-concept might be more readily accessible to measurement in early childhood than the self-concept. This conviction was based on a number of considerations described in the following paragraphs.

Most modern self theorists either implicitly or explicitly believe that self-referent constructs are the product of learning (Wylie, 1968).

Though there is lack of agreement about type of reinforcement, the following learnings would appear requisite to the development of a stable self-concept: (a) the valence of various self-referent attributes and (b) one's status in relation to these attributes.

It seems evident that determination of one's position in relation to self-related attributes necessitates feedback from the environment in regard to one's status. However, the scope of preschoolers' experiences is limited. The label, preschool, denotes that the child has not had any formal school experiences. He, thus, has little data with which to evaluate whether he is, in fact, "dumb" or "smart." Similarly, most preschoolers have had little experience in competitive exercise games and presumably have had little feedback about whether they are "strong" or "weak," "fast" or "slow." In effect, then, lack of opportunity limits the amount of feedback the preschool child has received about his own status in relation to many self-referent attributes.

While preschoolers may lack the experiences necessary to determine their own position in relation to certain self-referent attributes, many have presumably had access to information about the desirability or undesirability of these attributes. That is, the child may not have enough data to decide, for example, whether he is "smart" or "dumb," but may have received sufficient information to know that it is "good" to be "smart" and "bad" to be "dumb." It would appear, therefore, that investigation of preschoolers' conceptualizations of those self-referent attributes which are good to have and those which are bad to have presents a more fertile and meaningful focus for research. Moreover, investigation of these conceptualizations, in addition to providing descriptive data,

may also yield information about degree of differentiation of preschoolers' ideal self-concepts. The assumption here is that the richer the child's concepts of positive and negative attributes, the greater the level of ideal self-differentiation.

Initial pilot efforts involved construction of questions designed to elicit information on the ideal self and administration of these questions to small samples of 3-, 4-, and 5-year-old children. Subjects were drawn primarily from middle-class professional families. In the early stages of piloting, the questions were phrased in terms of "good person" and "bad person." Results indicated that children gave meaningful responses to both questions and comprehension appeared satisfactory. However, the Bad Person question yielded a stereotypy of response (primarily about crimes) which appeared undesirable for purposes of group comparison. In later pilot work "bad child" was substituted for "bad person" and resulted in greater variety, specificity, and richness of response. This change was therefore maintained in our field work. In effect, then, the Good Person and Bad Persor questions are not strictly parallel, though they are intended as measures of the opposite poles of the same construct. Further work will be required to determine if "good child" and "bad child" phraseology is more productive than that presently utilized in the Day Care Inventory.

It should also be noted that the Good Person and Bad Person questions did not appear in sequence in the final version of the Day Care Inventory. The two questions were administered separately in our field work because our pilot experience suggested that subjects tended to simply reverse their responses when the questions were presented together. That is, if

a subject responded, "A bad child hits other kids," to the Bad Person question, he tended to respond "A good person doesn't hit other kids," to the Good Person question. Separation of the questions largely eliminated this problem.

Body Parts

Body Parts is essentially a modification of the Body Parts measure used by Minuchin (1968) in her Mirror Games. Minuchin's measure was intended as a rough index of differentiation of self-image, and was also used for this purpose in the Day Care Inventory.

Wylie (1968) has succinctly summed up the relevance of parts of the body to self-concept:

> Presumably, bodily contents of the actual self-concept are among the first to be learned, as opportunities to observe one's body parts and their functions are always available and the child can carry out all kinds of explorations continually, whether or not other persons are present [p. 745].

Although there is little question about the relevancy of physical characteristics to self-concept, the issue can legitimately be raised of whether asking preschool children to identify parts of the body is a valid indicator of differentiation of self-image. Specifically, the question arises of whether a child might have a well-developed notion of his body parts, their functions, and adequacy without knowing the proper labels to apply to them. If this is indeed the case, then Body Parts may be tapping primarily language behavior rather than differentiation of self-image.

Minuchin (1968), herself, observed that her Body Parts measure appeared to be mainly an index of vocabulary knowledge. Identification

of anatomical features also appears as a cognitive measure in the Stanford-Binet Form L-M (Terman & Merrill, 1960), The Slosson Intelligence Test For Children and Adults (Slosson, 1963), and the Revised Preschool Inventory or Preschool Achievement Test (Hess et al., 1966). On the other hand, Bartlett (1969) has proposed that self-concept development must be regarded as closely linked with cognitive development and that transitions from one stage to another in level of cognitive functioning are reflected in concommitant changes in self-concept. This argument asserts that cognitive development and self-concept development proceed hand-in-hand and are psychometrically intertwined.

Minuchin's (1968) Body Parts contained five items: knee, shoulder, elbow, chin, and cheek. Subjects were taken individually to a full length mirror and asked to identify their own reflections. Then, after having been asked to perform several "warm-up" activities, children were asked to identify the five body parts by touch. Minuchin (1968) reported that, of the 18 male and female black 4-year-olds in her sample, only two identified all five body parts correctly.

The present investigators, using a pilot sample of 15 middle-class nursery school children, found that two-thirds of the children tested with Minuchin's measure obtained perfect scores and that three of the remaining children missed only 1 item. Results expressed in terms of percent passing for Minuchin's Body Parts for the pilot sample were: knee, 93%; shoulder, 93%; elbow, 73%; chin, 100%; cheek, 93%. Although our sample and Minuchin's sample are clearly not comparable, it was felt that an effort should be made to increase the range of Minuchin's measure.

Further pilot work involved the administration of five additional body parts to small samples of middle-class nursery school children. The five additional parts piloted were: eyelash, wrist, chest, abdomen, and heel. Heel falls at the 4-year-3-month level in The Slosson Intelligence Test For Children and Adults (Slosson, 1963), and eyelash appears in the Stanford-Binet Form L-M vocabulary subtest at the 6-year level (Terman & Merrill, 1960). Early pilot results indicated that only 20% of the children tested were able to identify abdomen correctly. This item was therefore dropped, and heel was substituted for the remainder of the piloting. Results for the additional body parts piloted expressed in terms of percent passing were: eyelash, 67%; wrist, 40%; chest, 31%; and heel, 71%.

On the basis of the pilot work, six body parts were chosen for inclusion in the Day Care Inventory measure. These were: shoulder, chest, eyelash, wrist, chin, and knee. In the final serial order of the instrument easy and difficult items were mixed in the interests of obtaining optimal performance (Ali & Costello, 1969).

Wish

The Wish measure is a direct question modeled after those used by previous investigators of children's wishes (e.g., Jersild, Markey, & Jersild, 1933; Jersild & Tasch, 1949). The text of the question as it appeared in the Day Care Inventory is as follows:

> Let's pretend you can wish for anything you want...anything in the whole world. If you had a wish and your wish could come true, what would you wish for?

Wish was included in the Inventory because it appeared to provide data on several facets of behavior of interest to us. Jersild and Tasch (1949) have observed that wishes directly or indirectly reveal aspects of the individual's outlook on life and what he wants from it. Similarly, children's wishes are very personal expressions of desire which reflect aspects of the phenomenological self.

Comparison of the wishes of different groups of children offers the opportunity to investigate collective differences in types of things wished for and also could provide clues to other dimensions on which groups vary. The Wish question affords this opportunity in addition to yielding descriptive data about the wishes of day care children. It should also be noted that the Wish question (a) samples behavior relevant to the "Expresses needs and wishes" objective in our objectives survey (Peters et al., 1972) and (b) apparently taps children's ability to generalize, thus providing a rough index of concept development (Jersild et al., 1933; Jersild & Tasch, 1949).

Review of Related Literature

Most work on children's wishes was conducted prior to 1950. In fact, a review of Psychological Abstracts for the past two decades failed to turn up a single study of the content of children's wishes after 1949. Lack of recent research in this area may be seen in part as a reflection of the feeling that other aspects of child behavior provide a more fruitful and heuristic ground for study. It may also reflect the feeling that early studies (e.g., Jersild et al., 1933; Jersild & Tasch, 1949) exhausted the topic and that most issues of importance in this area have been

resolved. In general, studies of children's wishes have been descriptive in nature and have examined differences in the content of wishes in relation to (a) chronological age, (b) group membership, (c) sex, and (d) IQ.

The first substantive data on children's wishes was reported by Jersild et al. in 1933. The Jersild et al. (1933) study also dealt with children's dreams and interests, but only aspects relevant to wishes will be reported here. Subjects for this investigation included 400 children, 25 males and 25 females at each age level from 5 to 12 years. One group of 240 children, 15 males and 15 females at each age level, was drawn from a New York City public school. The other group of 160 children, 10 males and 10 females at each age level, was drawn from two New York City private schools. Both the mean IQ and the socioeconomic level (as determined by occupational status of parents) of the public school sample were lower than that of the private school sample. Three wishes were obtained from subjects by asking the following questions in a private interview situation:

> If you had a wish and your wish could come true, what would you wish? If you had another wish? If you had another wish?

Analysis of data involved construction of general categories for wishes according to the content observed in subjects' responses. Wishes were then classified according to content categories, and the percentage of wishes falling into various categories was computed by age, sex, school group, IQ, and school groups matched in age, sex, and IQ. Jersild and his associates (1933) reported that the refinement of categories was continued until two or more independent raters agreed between 96 and 100% on the classification of the responses of 30 or more children whose records were selected at random.

Jersild et al. also reported data on the stability of wishes based

on the responses of 24 subjects interviewed on three separate occasions. Eighty percent or more of the wishes expressed in Interview 1 fell into the same general category as wishes expressed in Interviews 2 and 3. Results indicated that there was no "essential difference [p. 14]" between the trend of subjects' first, second, and third wishes. Thus, Jersild and his associates presented their findings for first wishes only.

Selected findings for the sample as a whole were as follows: (a) the largest group of wishes dealt with material objects and possessions (48.3%) and (b) the second largest group of wishes dealt with family relationships and companionship (11.4%) followed by wishes for self-aggrandizement or self-improvement (10.6%). The investigators also found that (a) there was a marked decline with age in wishes for specific material objects and possessions, (b) wishes for general inclusive benefits for self and others were positively related to IQ, (c) males had a somewhat higher percentage of wishes for material objects than did females, and (d) females had a higher percentage of wishes associated with family and social relations. This last result was attributed to the greater frequency of female wishes to have a baby or sibling. Jersild and his associates also observed that, in making their wishes, subjects appeared to direct their attention "toward accomplished objective facts rather than toward possession of powers within themselves which would enable them to win the things they desire [p. 25]." This observation held up regardless of sex or chronological age and was based on the finding that wishes dealing with improvement in personal power and the like constituted only about 11% of the wishes of the sample combined and showed no significant relation to either sex or chronological age.

In 1939 Witty and Kopel published results of an investigation of the wishes and dreams of public school boys and girls in Evanston, Illinois. In their publication, they compared some of their results with those obtained by Jersild et al. (1933). Subjects in the Witty and Kopel sample included 50 males and 50 females at each grade level from kindergarten through the eighth grade. The question used to obtain children's wishes was contained in the Witty-Kopel Interest Inventory (1939) and is as follows:

> Suppose you could have three wishes which might come true, what would be your first wish? Second wish? Third wish?

Results tended to corroborate Jersild et al.'s findings. Witty and Kopel found that (a) the largest number of wishes for all age groups were for material possessions and (b) wishes for material possessions decreased with age, while wishes of a more inclusive and general nature increased. Few important sex differences were observed by Witty and Kopel. Both sexes produced an almost identical number of wishes and the types of wishes expressed corresponded rather closely. Material possessions ranked first for both sexes. Wealth, travel, and proficiency in a skilled profession ranked next in that order for males, and wealth, travel, and proficiency in the arts ranked next in that order for females.

Speer (1939) conducted an investigation to determine whether the manner in which wishes are expressed affect their content and whether urban and rural schoolchildren vary in types of wishes expressed. Subjects for the Speer study included 65 males and 50 females from city schools and 37 males and 39 females from rural schools. Children were drawn from grades three through eight and ranged in age from 7 to 15 years.

The question, "If anything you wished would come true, what would you wish?" was administered. Written responses were obtained first; later, subjects were asked to respond orally to the same question. No effort was made to control for amount of time between written and oral expressions.

Results indicated that rural children showed less variability in their wishes than city children as measured by the percentage of children making wishes which fell into the same category in both their written and oral answers. However, variation by category was small, and except for one, classification differences were insignificant. Results also showed that rural children showed less variability within some of the wish categories than did urban children. This was true for both "things to have" and "things to become," with city children showing the greatest degree of change. Speer (1939) suggested that this latter finding might reflect the comparatively greater exposure of urban children to desirable objects and possible vocations. On the basis of these and other findings, Speer concluded that the manner (i.e., written or oral) of obtaining wishes did not significantly influence the content of the wishes expressed and, for his sample, age and sex differences appeared to be the most important determinant of type of wish, although social and cultural differences might affect the specific object of desire.

Winker (1949) studied age trends and sex differences in children's wishes, identifications, activities, and fears. Data gathered by Winker was drawn from records of children's responses to the Moosehart Wishes and Fears Inventory (no date) on file at the Mooseheart Laboratory for Child Research. Twelve inventories for males and twelve for females were selected for each of three age ranges: 7 years 0 months to 8 years 11

months, 11 years 0 months to 12 years 11 months, and 15 years 0 months to 16 years 11 months. Children whose records were used in the investigation were all residents of Moosehart, a community established for children and families of deceased members of the Loyal Order of Moose. Winker describes Moosehart children as either half orphans or full orphans from primarily upper lower-class and lower middle-class families.

Winker's (1949) analysis of data showed significant differences in types of things wished for between the age groups represented. Seven- and eight-year-olds expressed significantly more wishes for material things than did 15- and 16-year-olds, while the latter age group expressed significantly more wishes "To Be Someone" than did the former. No significant differences were obtained between the 11- and 12-year- and the 15- and 16-year-old groups.

No significant differences were obtained in types of wishes expressed by males and females for any of the age groups studied. It should be noted that Winker used only four categories for the classification of wishes. This procedure may have obscured differences which might have been discovered through the use of a finer method of categorization.

Zeligs (1942) conducted a comparative study of the wishes of 12-year-old children in 1935 and the wishes of a similar group of 12-year-olds in 1940. Subjects in the 1935 study included 165 boys and girls enrolled in the sixth grade in the Avondale Public School in Ohio. Subjects for the 1940 study numbered 160 boys and girls drawn from the sixth grade classes of the same school. Wishes were obtained by asking subjects to write what they would ask for if they could have their "three best wishes come true." Results indicated that 12-year-old children in 1940 expressed

more wishes concerned with social welfare, political conditions, and family welfare than did 12-year-olds in 1935. The 1935 groups expressed more wishes involving personal development, possessions, and pleasures. However, the authors report that the wishes expressed in 1935 covered practically the same items as those listed in 1940. Zeligs also compared wishes expressed by males and females for her 1940 sample. Boys expressed more wishes relating to personal development, social welfare, political progress, and possessions, while girls gave more wishes involving family welfare.

The last large-scale study of children's interests and wishes was reported by Jersild and Tasch (1949). Subjects for the study included approximately 3,250 children drawn from large-city, small-city, suburban, and small-town communities in the mid-western, southern and mid-eastern United States. Subjects ranged in age from 6 to 18 years and included males and females and blacks and whites. The Springfield Interest Finder (Jersild & Tasch, 1949), an 11-item questionnaire designed to tap children's wishes, likes, dislikes, and interests, was administered to all subjects. The questionnaire was administered orally to children in grades one through three, while older children wrote their responses. The text of the wish question in the interest finder was:

My three wishes:

Results relating wishes to chronological age tended to confirm earlier findings. Specifically, Jersild and Tasch found that (a) wishes for material possessions were sizeable at all ages, but wishes for specific material objects declined with age; (b) wishes pertaining to

people and benefits for mankind increased with age; (c) wishes pertaining to self-improvement increased with age from 10% in grades one through three to 58% at the junior high school level; and (d) the nature of the person cited in wishes pertaining to people shifted with age so that children in the elementary and intermediate grades expressed more wishes for family members, while junior high school students expressed more wishes for peers.

Jersild and Tasch (1949) also reported a number of findings relating children's wishes to sex of subject. Selected findings were: (a) girls expressed more wishes pertaining to people than boys at all age-grade levels, (b) girls expressed more wishes pertaining to travel than did boys, and (c) girls expressed more wishes relating to reading, wanting books, and using the library than did boys, while boys expressed more wishes relating to crafts and mechanical arts.

A number of the studies which have been reviewed have also compared the wishes of groups of children differing in socioeconomic status. Jersild and his associates (1933) reported differences between their public and private school samples, which had been found to represent low and high socioeconomic groups, respectively. Results showed that 42.1% of the wishes of the public school children fell into the category of specific material objects and possessions as compared with 26.3% of the wishes of the private school children. On the other hand, 31.9% of the wishes of the private school children fell into the category of general and inclusive benefits for self and others as contrasted with only 8.3% of the public school children's wishes. This difference obtained even when

children from the two groups were matched on chronological age and IQ. The investigators proposed that these differences might be attributable to (a) differences in program emphases between public and private schools, (b) vocabulary, and (c) a greater need for material possessions associated with the "necessities of life" on the part of the public school sample. However, they acknowledged that this last explanation was somewhat tenuous due to the fact that within the material possessions category the objects most frequently wished for by the public school group were toys rather than possessions associated with economic necessities.

Witty and Kopel (1939) compared the percentage of wishes falling into the material objects and possessions category for their Evanstown sample with those for the Jersild et al. (1933) New York samples. They observed that, while 32% of the wishes of the Jersild et al. private school sample and 37% of the Evanston sample fell into this category, 52% of the wishes of the Jersild et al. public school sample related to material possessions. Moreover, similar differences between the Evanston and New York samples existed in the relative incidence of dreams about "toys, food, money, etc." Witty and Kopel (1939) accounted for these disparate percentages on the basis of socioeconomic differences between the groups. The socioeconomic status of the Evanston sample was seen as closely approximating the socioeconomic status of the Jersild et al. private school sample in that both were comparatively high. The Jersild et al. public school sample was seen as representative of a lower socioeconomic level. Witty and Kopel (1939) concluded that the larger percentage of wishes of the New York public school sample for material possessions was a reflection of "a greater number of unsatisfied desires for material

things [p. 200]." This conclusion should be compared with the observations offered by Jersild and his associates about the preponderance of wishes for material things in his public school sample.

Zeligs (1942) compared wishes expressed by her 1940 Avondale sample with wishes expressed by another sample drawn from a suburb in Cincinnati. The two groups were equivalent in chronological and mental age but differed in socioeconomic status. The socioeconomic status of the Avondale sample was judged to be somewhat higher than the Cincinnati suburban sample. Comparisons of types of wishes expressed indicated that the Cincinnati sample expressed fewer wishes for social welfare and more wishes for personal and family possessions than did the Avondale sample. Zeligs (1942) interpreted these differences as a reflection of the fact that:

> ...children of lower subsistence levels, especially those who do not always have bare necessities, would probably concentrate on economic security and family welfare in their wishes [p. 240].

On the other hand, at least three investigators have failed to find any relationship between socioeconomic status and children's wishes. In 1944 Gray conducted an investigation of the wishes of southern black elementary children. Subjects for the Gray study included 820 black children of both sexes enrolled in the first through the sixth grades in schools in Tennessee and North Carolina. The question used by Gray to obtain subjects' wishes was as follows:

> If you could have anything in all the world that you might want, just anything, what would you ask for? Put down just ONE thing -- that one thing you would rather have than anything else you can think of.

Wishes of the 23% of Gray's sample who had the highest socioeconomic status and the 29% who had the lowest socioeconomic status were then subjected to analysis. Results indicated no significant differences in the percentages of children from the two economic groups expressing each type of wish and no significant differences between girls of high and low socioeconomic status and boys of high and low socioeconomic status in types of wishes expressed. Gray interpreted her findings as evidence that personal experiences are a more potent factor in children's wishes than group membership.

Additional support for the view that children's wishes are unrelated to socioeconomic status is derived from the Jersild and Tasch (1949) study. Jersild and Tasch (1949) noted that subjects in their sample from the intermediate grades differed in socioeconomic status. Part of the Jersild and Tasch sample at this grade level came from "fairly comfortable private homes," while another part of the sample came from "crowded city conditions," which by "middle-class adult standards would be regarded as very uncomfortable [p. 20]." Examination of the groups' wishes about housing indicated no differences in the proportion of children wishing for better living quarters. Further, the groups did not differ greatly in the proportion of children expressing wishes to "live somewhere else, leave home to visit someone else, or to travel [p. 21]." The investigators concluded that children from the intermediate grades who resided in poor accomodations seemed to take them for granted.

Pilot Work

None of the investigations just reviewed included children below the age of five in their samples. Since 3- and 4-year-olds were to be used

as subjects in the present study, some pilot work was conducted in order to determine which "wish" question might be most suitable from the standpoint of verbal comprehension. Two wish questions were tested in the pilot work and are as follows:

> Let's pretend you can wish for anything you want...anything in the whole world. If you had a wish and your wish could come true, what would you wish for?
>
> Do you know what a magician is? A magician is someone who can give us anything we want or can help us do anything we want to do. Let's pretend that I'm a magician and can give you anything you want or do anything you want me to. What would you ask me for? What would you want me to do for you?

The first question was a version of the question used by Jersild et al. (1933). The second question was a modification of a wish question appearing in The Mooseheart Wishes and Fears Inventory (no date).

Both questions were administered orally to different samples of males and females enrolled in a university nursery school. Results indicated that the Mooseheart wish question was too long and involved for most preschoolers. Many subjects lost interest or failed to understand the idea of a magician. The Jersild wish question seemed appropriate for the preschool population. It was therefore selected for inclusion in the battery.

In our field work, the Wish question was supplemented by an additional question designed to get at motivational factors incluencing children's wishes. After the Wish question was administered, each child was asked, "Why do you want _____?"

In addition, examiners were instructed to conduct an inquiry following wishes for material objects in order to determine whether the object

wished for was a toy or intended for adult use. This strategy allowed us to make finer discriminations within the material possessions category. It also allowed subjects to elaborate on their original responses; we thus received additional information for use in categorizing responses. For example, if a child responded "a car" to the Wish question, it would ordinarily be classed in the material possessions category. However, if during additional questioning it is discovered that the desire is for a "real car so that Daddy can drive to work," the object wished for takes on added significance, which should be recognized in classifying the object. In effect, it was felt that this procedure would increase the meaningfulness and specificity of response categorization.

Camera Game

The ability to express affective moods appropriately and recognize others' affective moods is integral to effective personal and social functioning. The Camera Game represents an effort to assess expressive aspects of affective development in preschool children. The measure also affords the opportunity to collect data on children's role-playing ability and fantasy enjoyment. In Camera Game the child is asked to reproduce five different moods. The five moods included are: happy, mad, sleepy, sad, and scared. In addition, the child is rated on degree of fantasy involvement displayed in the course of the measure.

Camera Game has been derived from the affect differentiation measure employed by Minuchin (1968) in her Mirror Games. Minuchin (1968) originally described the measure as an index of the "capacity to communicate

gradations of affect [p. 24]." She used it to assess aspects of differentiation and integration of self-image. Minuchin acknowledged, however, that her technique also demanded a certain amount of recall ability and self-distance and that it might more accurately be described as assessing the ability to recall and reproduce mood states in the absence of appropriate stimuli. Thus, performance on Minuchin's instrument also seems to require a certain amount of role-playing ability and imagination.

Review of Related Literature

A considerable amount of literature has been published on the topic of affective development in children, and the development of a number of indices of empathic ability in children has been reported. The field has suffered, however, from a lack of cohesiveness, and investigations relevant to affective development are scattered throughout the literature; therefore a systematic review is difficult. Recently, Deutsch (1972) conducted a comprehensive search of the literature and has pulled together related studies in an extensive review. Readers should refer to Deutsch's review for a detailed picture of current research in this area. In our report we have confined our attention to Minuchin's (1968) investigation because of its relevancy to the development of the Camera Game.

In 1968 Minuchin conducted a pilot project to (a) develop methods of "systematically describing variations in expressed curiosity and constructive exploration among preschool disadvantaged children [p. 2]" and (b) assess the relation between curiosity or exploratory behavior and other aspects of development. Those aspects chosen for study included

self image, expectations of the environment, and concept formation. The self-image measures used by Minuchin included identification of body parts, a drawing of the self, and the affect differentiation technique. The affect differentiation technique consisted of asking subjects to reproduce four affective states while standing in front of a full-length mirror. The four affective states required were happy, mad, sleepy, and sad. Instructions to the subject were: "Let's see what you look like when you're very (affective state)." A subject's score was the "number of appropriate and recognizable responses to the mood stimuli [p. 15]."

Selected findings relevant to the affect differentiation technique are as follows: (a) differentiation of affect was significantly related to curiosity and exploration as measured by preschool observations, and (b) affect differentiation was not reliably related to either of the other two self-image measures, though analyses suggested a trend in the expected direction between drawing scores and affect differentiation scores.

Pilot Work

Our initial pilot work with Minuchin's (1968) technique was aimed at increasing its range. In addition to the four moods used by Minuchin (1968), two other affective states were added: scared and surprised. Tha range of possible scores was also increased by including a $\pm$ scoring category for marginal responses. Procedure was essentially the same as that used by Minuchin except for substitution of a large hand mirror for a full length mirror. This substitution was dictated by practical considerations entailed by our field work.

Subjects for our initial pilot work included 15 middle-class male and female preschoolers enrolled in classes at The Pennsylvania State University Nursery School. These children were primarily from middle-class families.

Inspection of the data showed that three subjects received perfect scores, while three subjects received no credit. "Happy" was the easiest mood for subjects to reproduce, while "surprise" was the most difficult. The number of subjects whose responses fell into the three scoring categories for the six affective moods is shown in Table 15.

TABLE 15

MOOD SCORE FREQUENCIES FOR SIX MOOD STATES

Moods	+	+ -	-
Happy	11	1	3
Mad	5	3	7
Sleepy	7	4	4
Sad	4	1	10
Scared	5	3	7
Surprised	4	0	11

Our initial pilot work also yielded some practical information about the Minuchin technique which we were able to use in subsequent pilot work and in our field study. Our test administrator reported that the mirror seemed to have a detrimental effect on children's responses. Some subjects were so entertained by their own reflections that they laughed,

while trying to reproduce the required moods. Although use of the mirror obviously added to the children's enjoyment of the test, a few had difficulty composing themselves for subsequent responses. In effect, the mirror appeared to elicit an affective state inappropriate for most of the moods required and made it even more difficult for subjects to perform. Although Minuchin (1968) felt that the presence of a mirror aided children in reproducing moods, we did not draw the same conclusion. Whatever might be gained by subjects from seeing their reflections appeared to be dissipated by the elicitation of a conflicting mood.

Our test administrator also reported that some of the pilot subjects used motoric gestures as well as facial expressions in responding to the mood stimuli. Moreover, a few children reportedly used motor responses only to express certain affective states. These types of responses appeared to us to be qualitatively different than those employing facial expression only and seemed to represent an added source of data.

On the basis of our initial findings we instituted several administrative and scoring changes in Minuchin's original technique. The major administrative changes included omission of a mirror and addition of new instructions for the subjects. The purpose of the new instructions was to (a) provide a "lead-in" to the measure and (b) emphasize the fantasy aspects of the required tasks. The new instructions, together with the procedure to be followed by examiners, are as follows:

> Say, "Now let's play another pretend game. Let's pretend that I have a camera and that I'm going to take some pictures of you. Here is my camera." (Pretend that you are getting ready to take picture of child. Hold up your hands to form a camera and aim it at the child. Say "Click" and move your index finger as if pushing the shutter after he has produced each response. It is important that you enter into this game with gusto and make it fun for the child and for yourself.)

After demonstration of the pretend camera, examiners were told to introduce the first mood stimulus as follows:

> First, I want to take a picture of you when you're very happy. Show me what you look like when you're very happy!

When the subject produced his response, examiners were instructed to say "click" to emphasize the "let's pretend" atmosphere. Instructions for other mood stimuli paralleled those for "happy."

The major scoring changes which we instituted included: (a) retention of the ± scoring category for marginal responses instituted in our initial pilot work, (b) addition of a rating scale for fantasy involvement, (c) composition of scoring criteria for response quality, and (d) addition of a scoring category for responses which included gross motor components.

In Minuchin's original investigation the only criteria mentioned for the scoring of affective responses were appropriateness and recognizability. Since these criteria seemed to allow considerable latitude for disagreement, we felt that composition of more detailed criteria for the scoring of response quality would be appropriate. These criteria are as follows:

> \+ : A really good response. Easily recognizable without knowledge of stimulus word.
>
> ± : A marginal response. Fairly good but some ambiguity possible without knowledge of stimulus word.
>
> \- : A response is produced but in terms of the stimulus word is unrecognizable or inappropriate.

In addition, we felt that a distinction should be made between the absence of any response and responses to mood stimuli which were unrecognizable

or inappropriate. Thus, a "no response" (NR) category was included in addition to those for response quality. The final scoring category which we added, in recognition of occasional gestural or postural modes of affective expression, was labeled gross motor involvement. The scoring criteria for this response category were as follows:

> √ : Major motor involvement via gesture, posture, e.g., shakes fist for "angry;" droops head for "sleepy."

The fantasy involvement scale was constructed to assess subjects' fantasy involvement in the measure. It was pointed out earlier in this report that Minuchin's original technique appeared to require a certain amount of self-distance, role-playing ability, and imagination. Thus, the test offered an opportunity to assess degree of involvement in fantasy-type activities. The administrative changes mentioned earlier were carried out in part to emphasize the fantasy aspects of the test. For assessment purposes, examiners were instructed to rate subjects on a 3-point scale in terms of the degree to which they seemed to relish pretending and entered into the spirit of the Camera Game. Raters were instructed to ignore response quality in completing the rating since it could not be assumed that "goodness" of response was related to enjoyment of pretending.

Minuchin (1968) did not report any reliability data for her original affect-differentiation technique. Thus, the final phase of pilot work on Camera Game included a small pilot investigation to assess interscorer reliability for the mood stimuli scoring categories and for the fantasy involvement rating. Subjects for our reliability study included 9 male and female preschoolers enrolled in The Pennsylvania State University

Nursery School. Three raters were used, all of whom had had considerable experience in working with preschool children. The Camera Game was administered to subjects individually in accord with the instructions described previously. One rater administered the test and rated in the subject's presence, while the two other raters observed via a one-way mirror.

Results were analyzed by calculating the percent of agreement between all possible pairs of raters for the various scoring categories. Out of 108 possible comparisons between pairs of raters for the NR category, raters agreed 81% of the time on response presence or absence. Out of 46 possible comparisons between pairs of raters who scored response presence, raters agreed 70% of the time on response quality. Out of 108 possible comparisons for the gross motor category, raters agreed 87% of the time on the presence/absence of gross motor responses.

A reliability estimate for the fantasy development rating was obtained in a similar manner. Out of 21 possible comparisons between rater pairs, raters agreed 76% on subjects' fantasy involvement. Further inspection of the data indicated that two of the three raters agreed 100% of the time on the involvement rating. While interscorer reliability figures for the Camera Game were modest, it was felt that they reached an acceptable level for our purposes.

The Camera Game was administered in our field work as it appeared in the reliability study, except for the omission of the mood stimulus, "surprised." This item was omitted in the final version of the Inventory because it seemed to present the greatest latitude for scoring ambiguities and was also the most difficult mood for subjects to reproduce.

Rating Scales

Child Ratings

Many aspects of a child's social and personal development are frequently the heart of goals and curricula of child care programs. While the past decade has been characterized by the visibility, excitement, and research support of efforts to understand cognitive functioning and development more fully, a shift in focus to the personal and social domains is increasingly evident. There is a heightened sense that the so-called noncognitive areas should attain a more precise understanding and should be more carefully defined in curricula and in the specification of educational objectives (Sparling and Gallagher, 1971). The paucity of appropriate measures in these areas has been discussed elsewhere in this chapter as we described our search for, selection of, and (in some cases) development of assessment techniques.

One time-honored means of attempting to assess dimensions of social-personal development is the rating scale. Rating scales have traditionally been the instrument choice in two situations: (a) when there is no appropriate direct assessment technique available and (b) when the dimension to be assessed required observation over more than a brief period of time. In the latter case systematized observational techniques, which utilize trained personnel observing selected aspects of a child's behavior, are often preferred because of their greater precision and reliability of measurement. However, rating scales utilizing judgments of a person who has been familiar with the child over an extended period of time are adopted when observational techniques are inappropriate in terms of time

and cost. They have also been the method of choice for assessing global characteristics inferred from a multitude of specific behaviors (e.g., "kindness") and for assessing behavior over long periods of time.

Our Child Ratings, rating scales filled out by our day care children's teachers, were utilized in the present study for much the same reasons. Some behaviors simply could not be appropriately assessed by direct examiner - child assessment. Some could have been assessed by observational techniques, but these procedures were too costly in time, money, and inconvenience to the centers. Finally, some behaviors seemed appropriately assessed only by relying on the judgment of the teacher who had known and observed the child, albeit unsystematically, over an extended period of time.

The majority of the scales on our Child Ratings were adapted from the Day Care Behavior Inventory of Schaefer and Aaronson (no date). The Schaefer and Aaronson instrument had been devised to coincide with two other similar instruments that the authors had developed (The Classroom Behavior Inventory and the Infant Behavior Inventory). It was designed to be used in day care classes, to be clear in presentation, and to be relatively brief. Thus it seemed highly appropriate for use with busy day care teachers. A salient reason for the inclusion of its scales, however, was that the factors which are assessed are congruent with those which factor analytic studies have identified as prominent in the social-personal behavior of young children (Becker & Krug, 1964; Emmerich, 1971; Walker, 1967). These dimensions are extraversion, task-orientated behavior, introversion, hostility, distractibility, and considerateness. Each dimension is composed of five items.

On the Child Ratings there are a total of 43 aspects of a child's behavior to be rated. The first 30 items are those of the Schaefer and Aaronson Day Care Behavior Inventory. An additional 13 items were included however. These items were developed specifically to evaluate some behavioral objectives which were not amenable to direct assessment, but which were deemed important on the objectives survey made by staff of the Pennsylvania Day Care Study (Peters et al., 1972). Included are items related to self help, empathy, cooperativeness, creativity, and curiosity.

Aside from three items for which descriptive categories are used on the Child Ratings form, a 4-point scale was provided for rating each of the items. These four rating points were defined as "almost always," "frequently," "sometimes," and "almost never." The 4-point rating format represents a departure from the more traditional 5-point scale, which was originally used by Schaefer and Aaronson. We elected to eliminate the midpoint rating ("half the time") in order to obviate the tendency on the part of some raters to overuse this category. The teacher in her ratings in effect must first decide upon direction (on which side of the nonexistent neutral midpoint her judgment falls) and then make a judgment as to degree.

At the end of the Child Ratings we included the question "What three or four single words best describe this child to you?" This item was included to gather pilot data in two related areas. The first goal was to begin to describe salient dimensions along which teachers construe the children with whom they work. Our reasoning here, reflecting that of George Kelly (1955), is that teachers develop their own dimensions along which

they view and respond to children. These dimensions may not necessarily coincide with either our dimensions of study or with traditional research and educational dimensions. Our concluding question to the teachers, then, represents an effort to provide data for an initial attempt to describe some of these teacher-generated dimensions for conceptualizing the day care child. We also wished to attempt to analyze these data in terms of their evaluative meaning (Osgood, Suci, & Tannenbaum, 1957). We felt that many of the terms utilized by teachers in describing the children could be rated according to their evaluative (good - bad) component and that the possibility thus existed for developing a rough index of evaluative attitude toward a particular child or toward children in general.

Examiner Observations

In a testing situation a child's rapport with the examiner, his cooperativeness, and his attention to and persistence on the various assessment tasks have great bearing both on how the child performs in the assessment situation and on how his performance may be interpreted. Recognition of such factors has led to such common test administration practices as providing a warm-up period to familiarize the child with the examiner and the testing environment, allowing for "breaks" to combat fatigue and inattention, and devising various other individualized strategies to assure a child's best performance. Particularly in clinical situations, test results are interpreted in light of the child's general approach to the assessment tasks.

Test record booklets (e.g., Stanford-Binet, Terman & Merrill, 1960) typically provide scales for recording the examiner's impressions of the child's response to the assessment situation and tasks. More recently psychologists (e.g., Banta, 1970) have recognized that some of these scales might appropriately be used as measures of two "skills" of the child: his approach to tasks and his approach to interpersonal situations.

Banta (1970), for instance, utilized four Binet rating scales to comprise his task competence measure and four other Binet scales to comprise his social competence measure. Task competence referred, of course, to the child's interaction with the materials (persistence, attention, concentration, etc.), and social competence referred to his interaction with the examiner (friendly, cooperative, comfortable, etc.). Task competence ratings showed a test-retest reliability coefficient of .39 which, while significant, indicates considerable variability over the 2-month test-retest interval. The social competency ratings were considerably more stable over a period of time (2-month test-retest reliability of .60). Each of the ratings showed good internal consistency (odd-even correlation of .82 for task competence and .66 for social competence).

On a theoretical level, the relationship between social competence and task competence is a matter of dispute. Some theorists argue (e.g., Bales, 1958) that doing well on tasks and doing well in social interaction are independent, unrelated skills. Others (e.g., Erikson, 1950; White, 1960) see these skills as interrelated, as mutually interdependent. Banta's data showed a modest relationship (correlation of .44) between his measures of these two variables.

Our own rating scales for the examiner, Examiner Observations, also contained scales designed to assess social and task competence. The first four scales combine to yield social competence scores. The next four scales provide the task competence score. Our social competence scales are not identical to those of the Stanford Binet which were utilized by Banta (1970). They represent our attempt to specify more clearly the dimensions to be rated and the necessity to omit one Binet rating regarding need for praise and encouragement due to our assessment strategy, which attempted to equalize praise and encouragement for all children. Again we adapted a 4-point rating system instead of the traditional 5-point format in order to eliminate the mid-point type of rater response set. The Examiner Observations includes, in addition to the eight scales already mentioned, five additional behaviors to be rated. They are: speed of response, intelligibility of speech, amount of verbalization, amount of motor activity, and amount of guessing the child engaged in. Space is also provided for any additional comments and observations the psychometrist might wish to make.

CHAPTER 3

FIELD ASSESSMENT STAFF

Selection

Applicants for administration of the Day Care Inventory were obtained primarily from the departments of school psychology, educational psychology and clinical psychology at The Pennsylvania State University. In brief, we contacted colleagues in each of these departments and asked them to publicize among their graduate students that we were looking for competent psychometrists for a 2-week data gathering period. A large number of interested persons contacted us. After initial screening on the basis of training and experience, approximately 16 persons were invited to apply formally for the position of field psychometrist.

Acceptance as one of the field psychometrists in the child assessment group involved three steps. First the Personnel Data and Application Form, devised specifically for selecting our psychometrists, had to be submitted. It questioned the students about courses they had completed in psychometrics and child development, about their experience in testing young children, and about their experience in social work, community development, and psychology. A copy of this form appears in Appendix E. Second, those applicants who appeared most qualified were interviewed individually by the deputy head of the Pennsylvania Day Care Study. Third, faculty members in the students' departments, whom the applicants had named as references, were contacted for judgments regarding the students' general competency.

The final selection of our psychometrists was based primarily on

(a) prior training and experience in testing young children, (b) departmental recommendations, and (c) availability during the period when the field study was to be conducted. Of the 16 applicants who completed our entire application procedure, 7 were chosen.

Description

Our psychometrists were heterogeneous in sex, race, and education. There were four females and three males. One male and one female was black, while the remainder were Caucasian. We had hoped to have a more representative number of blacks but were limited by the fact that only two applied for positions. Three of the testers were doctoral candidates in clinical psychology. One psychometrist was a candidate for a master's degree in educational psychology. She had been previously employed as a psychometrist in a public school system. The remaining three psychometrists were advanced graduate students in school psychology. All of our testers had had considerable academic and practical experience in testing young children.

Training

The training of testers was divided roughly into three phases: (a) introduction to day care and the Day Care Inventory, (b) studying the Inventory and administering it to several preschoolers, (c) a final check-out, including administering the Inventory to a member of our staff.

The first phase of training involved a half-day group session for all psychometrists. This session had two goals: (a) to familiarize our psychometrists with the Inventory and our philosophy of test

administration and (b) to familiarize the psychometrists with the aims of our project, with the history and background of day care, and with problems which might be encountered in the field. The training session was conducted by the deputy head of the Pennsylvania Day Care Study. In the course of the session the entire Inventory was reviewed and its administration demonstrated by members of our staff. Considerable time was also spent in discussing our philosophy of test administration as outlined in the instructions for examiners, a copy of which can be found in Appendix F. In addition, time was spent outlining the aims of our work and providing psychometrists with a general understanding of day care. This aspect of training was emphasized because our psychometrists served as the personal representatives of our work and would therefore have the opportunity to assure the continued cooperation of the individuals in the practical day care world.

The second phase of training involved individual work on the part of our psychometrists to develop their full competence with the Inventory. During this phase, psychometrists were required to practice administering the Inventory to several preschoolers.

In the final phase of training, group and individual sessions were held during which the psychometrists administered the Inventory to one of our staff members who role-played a preschooler. This approach seemed particularly valuable in that psychometrists were able to observe and compare their methods of administration with the others, and examiner variability could thereby be reduced. The staff member who role-played a preschooler was able to highlight certain details which required particular alertness and was able to portray some specific difficulties which might be encountered.

In addition, while one psychometrist engaged in role-playing test administration, the other examiners recorded the staff members' responses on record sheets. Record sheets were then compared and discussed. It was felt that this procedure increased scoring reliability among examiners in instances where measures required subjective judgments to be made.

Assignment to Geographic Regions

Assignment of examiners to geographic regions was done in part on the basis of expressed preferences and in part on the basis of ethnic distribution in the State of Pennsylvania. With this latter factor in mind, we assigned one of our black psychometrists to the Pittsburgh area and the other to the Philadelphia area. Additional information regarding racial composition of child-psychometrist dyads can be found in Chapter 4 of this report.

CHAPTER 4

SELECTION AND CHARACTERISTICS OF THE SAMPLE

This chapter describes the sample of children used in the development of the Day Care Inventory and the method utilized in obtaining it. A brief summary of the chapter is provided here as an aid to the reader for the more detailed presentation which follows.

First of all, the sample was not a randomly selected one. Day care center sites were chosen to be representative of a number of geographic and day care program characteristics. At the various centers, children were selected only from those for whom parental permission had been given for the child's participation in the study.

The sample consisted of 282 children, half boys and half girls. About half of the children were 4-year-olds, about one-quarter were 3-year-olds, and about one-quarter were 5-year-olds. About two-thirds of them were white and approximately one-third were black. Slightly over half the children resided in large cities (Philadelphia and Pittsburgh) and their surrounding areas; the remainder lived in smaller cities, villages, or rural areas. White children were more equally distributed in the geographical categories, while black children were predominantly (88%) from the large cities and adjacent areas.

The "average" child in the sample had attended the day care center about 8 months and was enrolled in a classroom attended by 11-15 children. Age and ethnic homogeneity in the classroom were only slightly more common than mixed age and ethnic groups. Some 40% of the children lived in one-parent families, and the average number of children per

family was 3.1. About half of the mothers and about 88% of the fathers for whom we have information were employed.

Selection of the Sample

The sample was selected first by region, then by center within region, and then by children within centers.

Selection of Regions and Day Care Centers

Considerations of cost and time determined that our sample be limited to a small number of geographic regions. These regions were selected according to the following criteria:

1. Availability of Programs. To be considered for inclusion in our sample a geographic area was required to have a number of programs sufficient to optimize the likelihood of obtaining an appropriate number of children with whom to work.
2. Geographic Representation. We sought a sample which would represent the statewide range from high-density urban areas to sparsely populated rural regions.

Five areas which met these criteria were selected. They are:

1. Philadelphia and surrounding area
2. Pittsburgh and surrounding area
3. Counties of Northumberland and Schuylkill
4. Counties of Erie and Warren
5. Bradford County

Within these areas, we attempted to provide for a representation of day care centers according to type of funding (private proprietary,

Social Security Act Title IV-A funded, funded by other public means, etc.), type of program (from a primarily educational emphasis to more general orientations), and size of center.

The ultimate criterion of site selection, of course, was the willingness of a center to participate in the child assessment aspect of the Pennsylvania Day Care Study. We were both grateful for and impressed by the cooperation and helpfulness extended by each of the centers we contacted, particularly in light of the fact that these centers also extended cooperation simultaneously to other groups of this study. Thus one condition for possible serious biasing of the sample, a differential among centers in willingness to cooperate, did not occur.

A total of 51 day care centers, distributed throughout the five geographical regions, were included in the sample of centers.

Selection of Children Within Centers

The selection of children within centers was achieved in a manner which allowed for serious biasing of the results in an unknown manner. Specifically, the selection of children was made from the total number of children at a particular center for whom we had obtained parental permission to work with the child. It is our position that no child should be included in a study without the full consent of his parent and that the scientific desideratum of random selection of children must yield to an essential ethical principle of research with children--the informed permission of the parent.

Parental permission was obtained in a number of ways. Most frequently the day care teachers informed the parents of our forthcoming visit and its purpose and obtained the permission signatures. (A copy

of the parental permission slip appears in Appendix G.) Parents were contacted either in person when delivering or picking up their children or via telephone or by the time-honored method of the children taking home and returning the slips. In one instance permission was given by a parent advisory council, which had the responsibility for scrutinizing and approving or disapproving all research activities at a center. In a few instances in which parental permission had not been obtained at the center prior to the psychometrist's visit, due to an oversight or work demands, the psychometrist himself obtained permission from parents who were bringing their children to the day care center. Although no specific record was kept of the proportion of children in a center or class for whom we received permission, at no center did we have difficulty obtaining adequate parental consent.

Our sample of children, then, is best described as a sample of day care children for whom parental consent was obtained for the children's participation in this study, not as a random sample of day care children. How the present sample differs from a randomly selected sample is, of course, not known, and we can only acknowledge the possibility of bias.

A stratified random sampling of age, sex, and ethnicity at each day care center was attempted. Insofar as possible at any one center and/or over a period of time we asked each psychometrist to obtain a sample that was balanced by age and sex and that was representative of ethnic groups in the center. Within every category, for example, 4-year-old white females, the psychometrist utilized a system involving a table of random numbers to select any particular child for inclusion in the study. As is apparent when the characteristics of the sample are

discussed, our attempt was only partially successful; an equal number of children do not appear in each category. Some discrepancies, for example, few blacks in the rural category, can be seen as adequately representing population characteristics, whereas other unbalanced categories, for example, more 5½-year-old boys than girls, probably reflect sampling error rather than the actual situation in the center.

Characteristics of the Sample

A total of 290 children was selected. Three children, just under the age of three, were inadvertantly initially selected and assessed, and five children were of an ethnic group other than black or white. The data of these eight children were excluded from the sample utilized in the analyses. The resultant sample thus consisted of 282 children who were administered the Day Care Inventory.

Data were collected during the 2-week period of March 20-31, 1972. The following discussion presents the characteristics of the sample according to sex and age, geographic area and ethnicity, the day care center situation, and family.

Sex and Age

The sex and age characteristics of the sample are presented in Table 16. The total sample was approximately half boys (50.7%) and half girls (49.3%). The 3-, 4-, and 5-year-old categories have been divided into 6-month intervals for purposes of description of the sample and for analyses of data.

TABLE 16

PERCENTAGE OF CHILDREN CLASSIFIED BY AGE AND SEX

Age	Boys		Girls		Total	
	N	%	N	%	N	%
3-0 to 3-5	7	2.5	13	4.6	20	7.1
3-6 to 3-11	21	7.4	25	8.9	46	16.3
4-0 to 4-5	30	10.6	23	8.2	53	18.8
4-6 to 4-11	42	14.9	47	16.7	89	31.6
5-0 to 5-5	24	8.5	27	9.6	51	18.1
5-6 to 5-11	19	6.7	4	1.4	23	8.2
Total	143	50.7	139	49.3	282	100.0

That the various age groups are not equally represented in our sample is readily apparent from Table 16. There are many more 4-year-olds (142 or 52.4%) than 3-year-olds (66 or 23.4%) or 5-year-olds (74 or 26.2%). Inasmuch as our psychometrists were asked to try to equalize age groupings as much as possible, we are puzzled at this point about the lack of balance. We await further data in order to determine whether the age groups in our sample are representative of that among day care children in Pennsylvania or are the resultant of some as yet unexplained and unintended bias.

Geographic Area of Ethnicity

Table 17 shows the sample characteristics according to geographical and ethnic categories.

TABLE 17

PERCENTAGE OF CHILDREN IN TOTAL SAMPLE
CLASSIFIED BY GEOGRAPHIC AND ETHNIC CHARACTERISTICS

	White		Black		Total	
Geographic Type	N	%	N	%	N	%
Large cities	60	2i.3	77	27.3	137	48.6
Area surrounding large cities	13	4.6	9	3.2	22	7.8
Subtotal, Urban	73	25.9	86	30.5	159	56.4
Medium-sized towns	72	25.5	12	4.3	84	29.8
Villages and rural	39	13.8	0	0.0	39	13.8
Subtotal, Town/Rural	111	39.3	12	4.3	123	43.6
Total	184	65.2	98	34.8	282	100.0

In Table 17 the five geographic areas were broken into four geographic categories:

1. Large cities (Philadelphia and Pittsburgh; within city limits)
2. Suburbs and towns adjacent to large cities (towns and suburbs surrounding Philadelphia and Pittsburgh)
3. Medium-sized towns and cities (in counties of Northumberland, Schuylkill, Erie, Warren, and Bradford)
4. Small villages and rural areas (in counties of Northumberland, Schuylkill, Erie, Warren, and Bradford)

For purposes of analysis geographical categories were combined into a 2-part classification:

1. Urban. This category refers to the two largest cities, Philadelphia and Pittsburgh, and their immediately surrounding areas.
2. Town/Rural. This category is more heterogenous than the urban category. It includes, for example, children who live in Erie (population 130,000) and farm children who attend day care centers in small towns such as Albion.

Our geographical dichotomy might best be characterized as highly urban vs. all others. Although more refined geographic categories would be desirable, we feel the present rough dichotomy is a meaningful one for investigating possible locale-related differences in our measures.

In regard to ethnic makeup of the sample, about two-thirds of the children were white and about one-third black. A greater percentage of the white children came from the town/rural area than from the urban area (60% vs. 40%). Eighty-eight percent of the black children in our sample belonged in the urban category, and only 12% were found in the town/rural one.

The skewness in the distribution of the children results in the confounding of the ethnic and locale dimensions of the sample. Analyses which attend to one of these dimensions alone may yield information which can be erroneously interpreted. Urban vs. town/rural comparisons are confounded by ethnic differences in the two locale categories. Such a comparison is more appropriately titled urban whites and blacks vs. town/rural whites. Similarly, ethnic comparisons are appropriately viewed as comparisons between city and town/rural whites vs. city blacks. A

strong warning must be issued to the reader that any preliminary undimensional analyses regarding ethnic and locale comparisons must be interpreted with the confounding of these variables in mind.

That the race of an examiner may have measurable relationship to a child's performance in an assessment situation has been recognized and investigated in a number of studies. Early studies (reviewed by Sattler & Theye, 1967) suggested that a black child performs more poorly on intelligence tests when assessed by a black examiner rather than a white one. Later research (e.g., Allen, Dubanoski, & Stevenson, 1966; Bucky, 1970) involving the assessment of other variables indicates that this situation does not always exist. There seems to be intricate interaction among race of examiner, race of child, type of task or test, and the motivational and attitudinal climate of the teaching situation (Sattler, 1970), so that no general conclusions regarding racial mix or match alone are possible for examining situations.

In the work done by the child assessment group, both racial match and racial mix existed in the child-psychometrist dyads. The breakdown of the various combinations are presented in Table 18.

TABLE 18

RACIAL COMPOSITION OF CHILD - PSYCHOMETRIST DYADS

Child	Examiner	N	%
White	White	171	60.6
White	Black	13	4.6
Black	White	50	17.7
Black	Black	48	17.0
Total		282	99.9

As can be seen from Table 18, a racial match between child and psychometrist existed in approximately 78% of the cases, and a racial mix was present in about 22%.

Day Care Center Setting

The children in our sample came from a variety of day care settings. Data regarding some of these variables such as size of center, type of fundings, and degree of parent involvement in the program have been gathered by the field studies and family studies components of the Pennsylvania Day Care Study. The child assessment group collected, for descriptive purposes, certain additional data regarding characteristics of the child's day care setting. Integration of data from the three groups is planned for future analysis.

One of the variables our group was interested in was the length of time the child had attended the day care center in which he was enrolled at the time of assessment (Table 19). The great majority (80%) had attended the particular center in which they were seen by our staff for 10 months or less. The mean period of attendance was 7.8 months.

We had also hoped to obtain information about the child's total time in day care, recognizing that a child may have been formerly enrolled in another day care program. This sort of information, however, was not available with sufficient frequency for descriptive use.

Some characteristics of the child's classroom were recorded because of their value in describing the sample and because of a possibility of use in the assessment analysis. They are the number of children in the classroom, the age range of the children in the classroom, and the ethnic composition of the class. These characteristics are presented in Tables 20 and 21.

TABLE 19

NUMBER OF MONTHS THE CHILD HAD ATTENDED THE DAY CARE CENTER

	Children	
Months in Day Care Center	N	%
5 and under	94	33.3
6 - 10	132	46.8
11 - 15	24	8.5
16 - 20	18	6.4
Over 21	14	5.0
Total	282	100.0

TABLE 20

ENROLLMENT SIZE OF CLASSROOM ATTENDED BY CHILDREN IN THE SAMPLE

	Children in Sample	
Classroom enrollment: Number of Children	N	%
10 and under	9	3.2
11 - 15	185	65.6
16 - 20	57	20.2
21 and over	31	11.0
Total	282	100.0

TABLE 21

AGE AND ETHNIC COMPOSITION OF CLASSROOM

Variable	Children in Sample N	%
Age range in classroom		
1 year	144	51.1
More than 1 year	138	48.9
Total	282	100.0
Ethnic Composition		
White only	113	40.1
Black only	39	13.8
Black/White	98	34.7
Black/White/Other	29	10.3
Other (e.g., White/Oriental)	3	1.1
Total	282	100.0

Table 20 indicates that about two-thirds of the sample children were in classroom groups of 15 or fewer children and that about one-third were enrolled in groups of 16 or more children.

Table 21 presents data relating to the age range characteristics of the day care classrooms. About one-half of the children were in homogeneous age groups. These classrooms are characterized by a 1-year range in the ages of the children (for example, a classroom of all 3-year-olds). The other half were enrolled in heterogeneous age groups in which a greater

span of ages were represented (for example, 3- and 4-year-olds or 3-, 4- and 5-year-olds). We cannot be sure that these data can be clearly interpreted. The manner in which age grouping information was sought on the Identifying Information Form did not permit the distinction to be made between cases of genuine heterogeneous groupings and classrooms in which most children were a certain year of age and a few children had recently passed into the next year. Our question asked simply for "Age range in classroom" and as such may be frail in the ability to yield useful information regarding the homogeneity-heterogeneity of classroom age grouping. The most parsimonious interpretation of the data in Table 21 focuses upon the homogeneous grouping--it is likely that at least half of the children were enrolled in classes grouped by a 1-year age span.

Table 21 also presents data relating to the ethnic characteristics of the classrooms. Of the total of sample children, slightly over half (54%) attended ethnically homogeneous classrooms, 40% were in all white groups, and 14% were in all black groups. Forty-six percent of the children attended ethnically mixed groups.

Family

The children in our sample are characterized not only by such demographic variables as age, sex, and color, and by such day care variables as number and age range of classmates and color mix in the classroom, but by variables which relate to their family membership. Again, other components of the Pennsylvania Day Care Study have gathered data relating to day care families, and utilizing such data is part of planned future analyses if overlap in samples permit. What

are reported here (in Tables 22 through 26) are data concerning parents and siblings obtained by staff for the children who were administered the Day Care Inventory. The data were obtained from teachers' reports and day care center records. These data must be regarded as likely to involve an unspecifiable amount of error. Some error is likely due to lack of precise information (data concerning total number of adults in a child's home is a case in point). Other error may relate to misinformation being given the center. We understand, for example, that at certain centers employment of the parent is a criterion for accepting a child. In such a circumstance, misleading information regarding employment might have been given a center in order to secure day care for the child.

Table 22 gives information relating to parents and other adults in the child's home. Fifty-eight percent of the children live with both their parents; 42% did not. Of the children who were from single parent families, about one-third had no father present in the home, and 5% had no mother in their home.

The data presented in Table 22 further indicate that, while a 2-adult home is most frequently specified (59%), fully 35% of the children had only one adult in the family. Only 6% of the children came from families in which more than two adults were in the home. When data relating both to parents and to adults in the home are considered together, they suggest that "other" adults occur equally and sparsely in both 1- and 2-parent families. Specification of "other" adults in our Identifying Information Form (e.g., grandparent, aunt) occurred too seldom for meaningful analysis.

TABLE 22

ADULTS IN THE CHILD'S HOME

Variable	N	%
Parents in Home:		
Both	163	57.8
Mother only	103	36.5
Father only	14	5.0
Other parent substitute	2	0.7
Total	282	100.0
Total Number of Adults in Home:		
1	99	35.1
2	166	58.9
3	12	4.3
4 or more	5	1.7
Total	282	100.0

Parental occupational status is presented in Table 23. It shows that about half of the approximately 80% of the mothers for whom information was available are employed outside the home. The unknown status of the 43% of the fathers is interpreted as reflecting the large percentage of father-absent homes. Of the 161 fathers for whom information is available, 12% (20) are unemployed and 88% are employed.

TABLE 23

PARENT OCCUPATIONAL STATUS

	Mother		Father	
Occupational Status	N	%	N	%
Unknown	59	20.9	121	42.9
Unemployed	106	37.6	20	7.1
Employed	117	41.5	141	50.0
Total	282	100.0	282	100.0

The occupational classification of the known employed parents is the subject of Table 24. The occupations of the fathers show more "spread" throughout the occupational categories than the mothers' occupations do. Over half of the employed mothers are engaged in clerical or service occupations, while the occupations of craftsman, machine or equipment operative, and laborer were frequently mentioned for the fathers. The most frequently mentioned category for the fathers, however, was the "other" category. This category was utilized when our information was nonspecific as to particular occupation, e.g., "works at Ford."

In Table 25 information concerning the number of siblings is presented. The data show that about half of the children for whom we have information were only children or had one sibling and that the remaining half had two or more siblings. Another way of stating these data is that about 50% of the families were 1- or 2-child families and the remaining 50% were larger. The average (i.e., statistical mean)

TABLE 24

OCCUPATIONAL CLASSIFICATION OF EMPLOYED PARENTS

Occupation[a]	Mother		Father	
	N	%	N	%
1. Professional, teacher, etc.	12	10.3	17	12.1
2. Farmers and farm managers	0	0.0	1	.7
3. Managers, officials, nonfarm prop.	2	1.7	4	2.8
4. Clerical & kindred workers	30	25.6	7	5.0
5. Sales workers	2	1.7	3	2.1
6. Craftsmen, foremen	5	4.3	26	18.4
7. Machine & equipment operatives	6	5.1	18	12.7
8. Private household workers	1	.9	0	0.0
9. Service workers	40	34.2	10	7.1
10. Farm laborers & foremen	0	0.0	1	.7
11. Laborers, except farm & mine	0	0.0	18	12.8
12. Students: college, high school, business	0	0.0	3	2.1
13. Students: trade school, on-the-job	4	3.4	5	3.6
15. Employed, other	15	12.8	28	19.9
Total	117	100.0	141	100.0

[a] Occupational categories have been adapted from those of the United States Census Bureau.

number of children per family was 3.1. When we consider the fact that not all these families are "completed families," it is apparent that our day care children came from families which are considerably larger than the national average (2.3).

TABLE 25

NUMBER OF BROTHERS AND SISTERS

	Total Sample		Sample for Whom Information is Available	
Number of Siblings	N	%	N	%
No information	26	9.2	-	-
None: child is an only child	39	13.8	39	15.2
1	88	31.2	88	34.4
2	45	16.0	45	17.6
3	36	12.8	36	14.1
4	19	6.7	19	7.4
5	9	3.2	9	3.5
6	12	4.2	12	4.7
7 or more	8	2.8	8	3.1
Total	282	99.9	256	100.0

The information presented in Table 26, Position of Child Among Siblings, indicates that our sample contained more "youngest" children than "middle," "oldest," or "only" children. These data could suggest that

the youngest child in a family is more likely to receive day care. Perhaps while the youngest and last child in the family is in his preschool years, the working mother returns to work if day care can be provided, whereas a comparable mother with an infant and a preschooler (in this case a "middle" or "older" child) does not work and does not seek day care for her preschooler. It can also be suggested that these "youngest" children may be youngest merely temporarily and may become middle children at some point in the future.

TABLE 26

POSITION OF CHILD AMONG SIBLINGS

	Total Sample		Sample for Whom Information is Available	
Position	N	%	N	%
No information	40	14.2	-	-
Only child in family	39	13.8	39	16.1
Oldest child in family	41	14.5	41	16.9
Youngest child in family	98	34.8	98	40.5
Between oldest and youngest	64	22.7	64	26.4
Total	282	100.0	242	99.9

APPENDIX A

IDENTIFYING INFORMATION FORM

IDENTIFYING INFORMATION FORM

Name: _____ Date: _____ (yr. mo. day) Time of day tested: _____

Sex (Circle): M F

Ethnic group (Circle): Caucasian, Black, Oriental, Spanish-American

Birth date: _____ (yr. mo. day)

How long did test take (minutes): _____

Age: _____ (yr. mo. day)

Name of Center: _____

Address: _____

Family: Adults

Living with child?

M Yes No Occupation: _____

F Yes No Occupation: _____

Other adults in home? Yes No

If Yes, please specify: _____

Siblings:

Age	Sex

Other children living in home:

Age	Sex	Relat.

How long has child been in this day care facility? _____ (yr. mo.)

Total of time spent in any day care situation: _____ (yr. mo.)

No. of children in classroom: _____

Age range in classroom: _____

Ethnic groups represented in classroom (Circle): Caucasian, Black, Oriental, Spanish-American

Examiner's Name _____

APPENDIX B

INSTRUCTIONS AND RECORD FORMS

FOR DIRECT ASSESSMENT COMPONENTS

DOG AND BONE

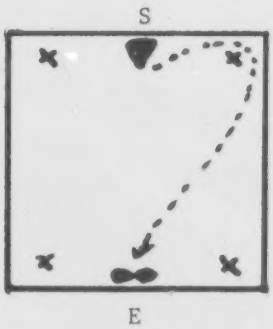
Materials: Board with houses, dog, bone

Procedure:

Place board in front of child. Say: These are houses.
Show dog to child. Say: What is this? (If child doesn't say dog(gie), say: This is a dog(gie).) Place dog on child's side, as in diagram.
Show bone to child. Say: This is the doggie's bone. The doggie likes to chew his bone. Place bone on examiner's side, as in diagram.

Say, while demonstrating path with finger: One way the dog can get to his bone is to come up THIS way.

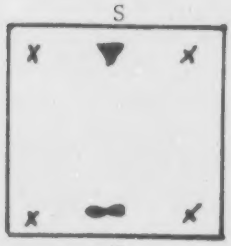
Say, while demonstrating path with finger: Another way he can go is AROUND THIS WAY. Emphasize "around this way" at point of acute turn around house on child's left.



Say: Now you take the dog(gie) (encourage child to pick it up) and find ANOTHER way, a DIFFERENT way for him to get his bone.
Record path on diagram. If child gives unusual response (e.g., over the houses, rolling dog end to end), describe specific behavior as well as indicating path on diagram.
Give 10 trials. Say for each trial: Now find a DIFFERENT way for him to get his bone. Find ANOTHER way.

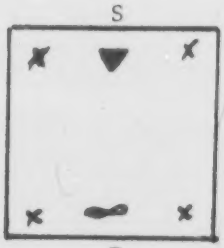
DOG AND BONE

1
S



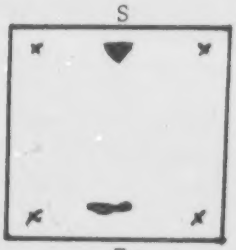
E

2
S



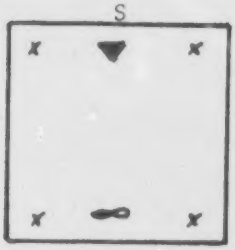
E

3
S



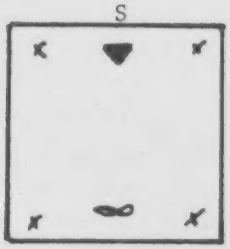
E

4
S



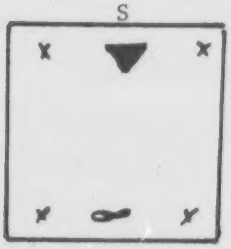
E

5
S



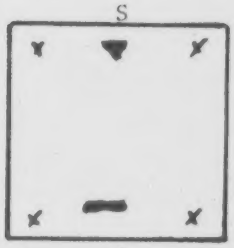
E

6
S



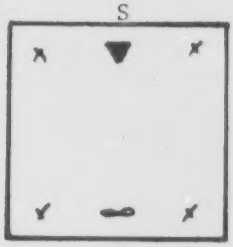
E

7
S



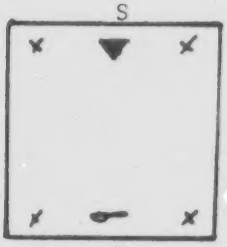
E

8
S



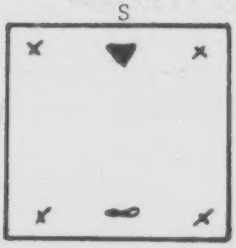
E

9
S



E

10
S



E

At the conclusion of this test say: Good! You really did a good job on that one!

SOCIAL ROLES

Procedure:

1. Say: A (boy, girl) can be all sorts of things when (s)he grows up. What would you like to be when you grow up? Record the child's response verbatim.
   a. Then say: That's very interesting. Maybe you've thought of some other things you could be when you grow up. What else could you be when you grow up? Record any additional response verbatim.
   b. Then select the child's initial choice and say: Why do you want to be a(n) _____? Record response verbatim on record form.

2. Say: What does a mother do? What does a mommy do?

3. Say: What does a father do? What does a daddy do?

4. Say: What does a teacher do?

Record all responses verbatim on record form.

SOCIAL ROLES

Record all responses verbatim.

1. Initial free response:

   a. Additional occupations named:

   b. Reason for initial choice:

2. Mother do:

3. Father do:

4. Teacher do:

At the conclusion of this test say: I like your ideas on these. Good!

BODY PARTS

Procedure:

Have the child get up from his chair and stand several feet from you. Stand up yourself if you feel like it. Then say: Let's see you touch your: Repeat this phrase for each item. Score responses on record form.

1. Shoulder

2. Chest

3. Eyelash (It may be necessary to ask the child to repeat this response to make sure he is indeed pointing to eyelash--not eyelid or eyebrow.)

4. Wrist

5. Knee

6. Chin

BODY PARTS

Score pass (+) or fail (-) for each item. Score this test strictly, e.g., if child puts his hand on his thigh for "Knee" he doesn't pass.

1. Shoulder _____
2. Chest _____
3. Eyelash _____
4. Wrist _____
5. Knee _____
6. Chin _____

At the conclusion of this test say: Sometimes these are hard for people your age, but you knew (a few, a lot) of these! Fine!

WHO LIKES YOU?

Procedure:

Say: Now let's talk some more about you, (child's name). Let's talk about who likes you. Tell me who likes you. Tell me as many people as you can who really like you. Record free response verbatim.

Inquiry:

After the child's free response, inquire about any proper names mentioned by him and determine whether these persons are peers, teacher, siblings, grandparents, etc. Indicate the child's response in parenthesis following each proper name.

WHO LIKES YOU?

Record all responses verbatim.

Free response:

Inquiry: Record "peer," "teacher," "sibling," etc., after each proper name as determined by inquiry.

PICTURE NAMING

Material: Small (3x5) booklet of cards.

Procedure:

Say: Now I want you to look at some pictures with me and tell me what the things are called.

Open booklet to first picture.

Say: What is this? What do you call it? Ask one or both questions for each card. Use reinforcing remarks such as Good! You're doing a fine job! frequently throughout this test.

PICTURE NAMING

Record response verbatim.

1. (hat) _____
2. (phone) _____
3. (boat) _____
4. (purse) _____
5. (hand) _____
6. (tire) _____

Say: Gee, you're doing a nice job on these pictures!

7. (knife) _____
8. (pitcher) _____
9. (fish hook) _____
10. (tree) _____
11. (key) _____
12. (web) _____

Say: Some of these are very difficult for people your age. You're (a) doing very well or (b) trying very hard. Good!

13. (coat) _____
14. (hinge) _____
15. (leaf) _____
16. (fork) _____
17. (umbrella) _____
18. (guitar) _____
19. (football) _____
20. (horse) _____

At the conclusion of this test say: I don't expect people your age to know all of these. You did a nice job!

CONCEPT OF GOOD PERSON

Procedure:

1. Say: Now I have another question for you. Let's think about what a good person does. We all try to be good people, don't we. What does a good person do? If the child doesn't respond after a few seconds have elapsed, repeat question once. Record responses verbatim on record form.

2. After the child has completed free response, say: Good! Can you think of any other things a good person does?

CONCEPT OF GOOD PERSON

Record all responses verbatim.

1. Free response:

2. Additional responses:

At the conclusion of this test, pick appropriate statement and say either:

1. I really liked your answers here. Good for you!

   or:

2. This is a hard question, isn't it! I could see you were really trying. Good!

GROSS MOTOR SKILLS

Procedure:

Say: Now let's do something different. Use reinforcing remarks such as Good! Fine! You're doing very well! frequently throughout this task.

1. Demonstration: Stand and show the child how to balance on one foot without holding on to anything. (Either foot is O.K.)
   Say (while demonstrating): Watch me. See if you can stand on one foot like this. Now you do it for as long as you can.
   Record time on each of 3 trials (if child gets first 2 trials do not ask him to try again)
   For 2nd and 3rd trials say: Now I want you to do it again (while demonstrating briefly).

2. Demonstration: Hop in place on one foot 4 times. (Either foot is O.K.)
   Say (while demonstrating): See if you can hop like this. Now you do it as many times as you can.
   Record the number of times the child hops either in place or over a distance, without holding on (or putting second foot down) Terminate if child reaches 10 hops.
   Give 2nd trial: Now do it again.
   Record number of hops. Terminate if child reaches 10 hops.

3. Demonstration: Stand and show child how to walk heel to toe, forward, for 5 steps.
   Say (while demonstrating): See if you can walk like this. Now you do it.
   Record number of steps child takes in which heel and toe are no further than 1 inch apart (by the examiner's estimation). Terminate if child reaches 10 steps.
   Give 2nd trial. Say: Now you do it again (while demonstrating briefly).
   Record number of steps. Terminate if child reaches 10 steps.

4. Demonstration: Stand and show child how to perform heel to toe. Walk backwards for 5 steps.
   Say (while demonstrating): Now see if you can walk like this. Now you do it.
   Record number of steps taken in which heel and toe are no further than 1 inch apart. Terminate if child reaches 10 steps.
   Give 2nd trial. Say: Now do it again (while demonstrating briefly).
   Record number of steps. Terminate if child reaches 10 steps.

GROSS MOTOR SKILLS

1. (Score by indicating number of seconds he stands on one foot.)

   Trial

   1 _____

   2 _____

   3 _____

2. (Score number of times child hops, in place or over distance, on one foot.)

   Trial

   1 _____

   2 _____

3. (Score by indicating number of heel-toe contacts, up to 1" apart.)

   Trial

   1 _____

   2 _____

4. (Score by indicating number of heel-toe contacts, up to 1" apart.)

   Trial

   1 _____

   2 _____

At the conclusion of this test, pick appropriate statement and say either:

1. Say! You did those very nicely! You're really good at things like this, (child's name)!

   or

2. That was a good try, (child's name)!

SOCIAL COMPETENCE QUESTIONS

Procedure:

Say: Now let's play a game of pretending. I'll tell you what's happened and you tell me what you would do.

Record responses verbatim.

1. Let's pretend you just got up in the morning and want to get dressed. What do you do?

   If the child gives NR or says, "I get dressed," say:

   a. Who puts on your shirt/dress?
   b. Who buttons/zippers your coat?
   c. Who ties your shoes?

   If the child responds to any of the above with a proper name, determine via inquiry and note who this person is (e.g., older sibling, grandmother, mother).

2. Let's pretend that you were playing and your toy broke. What do you do?

3. Let's imagine that you cut your finger. What do you do?

4. Imagine that a child much smaller than you are starts to fight with you. What do you do?

5. Why do people have to work?

SOCIAL COMPETENCE QUESTIONS

Record all responses verbatim.

1. Get up in the morning:

   a. Who puts on shirt/dress?
   b. Who buttons/zippers?
   c. Who ties shoes?

2. Toy broke:

3. Cut finger:

4. Fight:

5. Work:

At the conclusion of this test say: <u>You had (some/a lot of) good ideas here</u>!

THE MANY-SPLENDORED CUBE

Material: Cube

Procedure:

Say: Here is something for you to play with while I work on these papers for a minute. Place cube IN FRONT OF the child, fuzzy side down, picture facing toward you.

If the child doesn't manipulate cube, after 30 seconds say encouragingly: Here, you can play with it and HAND cube to the child.

Pretend to work on papers as you:

1. Indicate approach to cube.

2. Record child's behavior and verbalization (verbatim).

3. At end of this measure, scan observed behavior check list and mark any behaviors you observed but could not write down during your recording.

Respond to comments with umhmm where appropriate.
Answer any questions directed to you briefly and factually.

THE MANY-SPLENDORED CUBE

Approach to cube: Check (/) child's behavior.

_____ No spontaneous initiation (needs second direction)

_____ Spontaneous initiation (after first direction)

Spontaneous behavior and verbalization:

Involvement in task: Check (/) appropriate box.

	1	2	3	4	
Hesitant, hardly interested					Eager, enthusiastic exploration

Observed Behavior Check List: Check (/) if behavior is seen:

Gross manipulation:

_____ Turning block over
_____ Shaking
_____ Peeling (attempted)
_____ Dropping
_____ Other (Specify) _____

Tactual:

_____ Uses only finger tips
_____ Feels surfaces
_____ Feels edges, corners
_____ Rubs against cheek or other part of body

Other:

_____ Taste-tongue or mouth on cube
_____ Smell-brings to nose and breathes in
_____ Listens-brings to ear and shakes cube

PICTURE INTERPRETATION

Material: 5x8 picture of nursery school

Procedure:

Say: O.K. I've finished with these papers now, and I have another picture for you to look at. Present picture to the child and say: Look at this picture and tell me all about it. If no response after 10-15 seconds say: Tell me all about this picture. If the child names only 1 or 2 things, say: Tell me more about the picture and indicate prompting with (Q) on record form. Record responses verbatim.

Inquiry:

When the child has completed his free response, if not already mentioned spontaneously, point to:

1. Group of three children and teacher and say: What are they doing?
2. Solitary child seated on floor and say: What is this child doing?
3. Solitary child seated on floor and say: How does this child feel?
4. The entire picture and say: What sort of place do you think this is?

Record responses on record form verbatim.

PICTURE INTERPRETATION

Record free response verbatim and indicate any references to:

(1) Group of three children and teacher by (Grp.)

(2) Solitary child (Sol.)

(3) Woman with child in lap (Lap)

(4) Pair of children by fishbowl (Pr.)

Free Response:

Inquiry: Record verbatim.

1. Group:

2. Sol. Doing:

3. Sol. Feeling:

4. Place:

At conclusion of this test pick appropriate statement and say either:

1. Good! You thought of (some/a lot) of things to tell me about. That's fine!

   or

2. Sometimes it's really hard to think of things to say about a picture like this. I don't expect you to be able to do everything. (or I like the way you try these things.)

CONCEPT OF BAD PERSON

Procedure:

1. Say: Now here's another question for you. We all try not to be bad people, don't we. (Pause) What does a bad child do? If the child doesn't respond after a few seconds have elapsed, repeat question once. Record responses verbatim on record form.

2. After the child has completed free response, say: Good! Can you think of any other things a bad child does?

CONCEPT OF BAD PERSON

Record all responses verbatim.

1. Free response:

2. Additional response:

At the conclusion of this test pick appropriate statement and say either:

1. I really liked your answer(s) here. Good for you!

   or

2. This is a hard question. I could see you were really trying.

VISUAL DISCRIMINATION

Material: Two booklets of 5x8 picture cards: Labeled, A. Similarities and B. Differences

A. Similarities

Procedure:

Present first card (example).

Say: Here are some pictures. See this one here? (point to picture to left of double line) Now look at these pictures here (slide finger along the other 4 pictures on the card). Find the one of these (pointing along the 4 pictures) that looks JUST LIKE this one. (pointing to picture on left).

Do example with the child. Show him correct picture if he missed it.

Say: Good! You (we) found it. You (we) found the one that looks just like this one. (pointing)

Present items 1 through 10 saying: Find one just like this one. Point to it for each item.

Record alternatives chosen by the child on record form.

B. Differences

Procedure:

Say: Here is a different book of pictures.

Present first card (example). Say: Find the one that looks DIFFERENT. Find the one that is NOT THE SAME as the others. Point to it.

Do example with the child. Show him the different one if he missed it.

Say: That's it! Good! That's the one that looks different.

Present items 1 through 10 saying: Find the one that is DIFFERENT, the one that is NOT THE SAME. Point to it for each item.

Record alternatives chosen by the child on record form.

VISUAL DISCRIMINATION

A. Similarities

Record letter corresponding to child's choice among the alternatives (A, B, C, or D):

Ex. _____

1. _____
2. _____
3. _____
4. _____
5. _____

Say: You're doing very well on these.

6. _____
7. _____
8. _____
9. _____
10. _____

At conclusion of this test say: Some of these are pretty difficult for people your age. You (a) did very well; (b) tried hard. Good!

B. Differences

Record letter corresponding to child's choice among the alternatives (A, B, C, or D):

Ex. _____

1. _____
2. _____
3. _____
4. _____
5. _____

Say: You're doing very well on these.

6. _____
7. _____
8. _____
9. _____
10. _____

CAMERA GAME

Procedure:

Say: Now let's play another pretend game. Let's pretend that I have a camera and that I'm going to take some pictures of you. Here is my camera. (Pretend that you are getting ready to take a picture of the child. Hold up your hands to form a camera and aim it at the child.) I'm going to take your picture. Say: "Click" and move your index finger as if pushing the shutter after the child has produced each response. (It is important that you enter into this game with gusto and make it fun for the child and for yourself.) After you have shown the child your "camera," say:

1. Now I want to take a picture of you when you're very happy. Show me what you look like when you're very happy. Wait for child's response. Then say, "Click."
2. Now I want to take a picture of you when you're very mad. Show me what you look like when you're very mad, really angry. ...Click.
3. Now I want to take a picture of you when you're very sleepy. Show me what you look like when you're very sleepy....Click.
4. Now I want to take a picture of you when you're very sad. Show me what you look like when you're very sad....Click.
5. Now I want to take a picture of you when you're very scared. Show me what you look like when you're really afraid....Click.

Score responses for (a) no response, (b) quality of response and (c) gross motor involvement in table.

Rate child's enjoyment of pretending on scale below table.

CAMERA GAME

Score for:

No Response

NR: Child does not respond at all

Response Quality

+ : A really good response. Easily recognizable without knowledge of stimulus word.

± : A marginal response. Fairly good but some ambiguity possible without knowledge of stimulus word.

\- : A response is produced but in terms of the stimulus word is unrecognizable or inappropriate.

Gross Motor Involvement

√ : Major motor involvement via gesture, posture, e.g., shakes fist for "angry;" droops head for "sleepy."

Emotion	NR (√)	Quality +; ±; or -	Gross Motor Involvement (√)
1. Happy			
2. Mad			
3. Sleepy			
4. Sad			
5. Scared			

Rating of Fantasy Involvement

Rate the child on the degree to which he seems to relish pretending and enters into the spirit of an imaginary game. The "goodness" of the responses which he makes are irrelevant here.

Seems to relish pretending. Enters into spirit of game with real enthusiasm	1	2	3	Seems uninvolved with fantasy aspects of game. Shows no special enjoyment of imaginary nature of task.

At end, say: That one was really fun for us. or I really like to pretend to take pictures with my pretend camera.

UNUSUAL USES

Procedure:

1. Say: You know what a cup is: you can use a cup for lots of things. Tell me all the things you can think of that you can use a cup for.

   Record verbatim responses on record form. Do not hurry the child. Present next item only when it is clear that child is finished.

2. Say: Now think about a newspaper--you can use a newspaper for lots of things, too! Tell me all the things you can think of that you can use a newspaper for.

   Record verbatim responses on record form. Again, do not hurry the child.

UNUSUAL USES

Record verbatim responses. Also include any spontaneous additions relevant to these items which the child may make later on in the testing session.

1. Cup

2. Newspaper

WISH

Procedure:

Say: Here's the last thing I want to ask you today; it's another game of pretending. Let's pretend that you can wish for anything you want... anything you want in the whole world. If you had a wish and your wish could come true, what would you wish for? Record child's response verbatim.

Inquiry: (To be administered if the child responds to initial question)

a. Following child's response, say Why would you want (Insert child's response).?

b. (To be administered if child's response requires further definition.) In this section of the inquiry you must frame your question to clarify child's wish, e.g., whether a toy or "the real thing;" or, if a person is named, you must determine and note who this person is, i.e., mother, sibling, playmate, etc. The following are intended as examples of questions you might ask to determine the preceding.

Example I:
S: I want a car.
E: Do you want a toy car or a real car?
S: A real car for Bob.
E: Who's Bob?
S: My daddy.

Example II:
S: I'd wish for velvet.
E: Tell me about velvet.
S: I saw her on TV. She's a doll that talks.

WISH

Record Verbatim:

Free Response(s):

Reason(s):

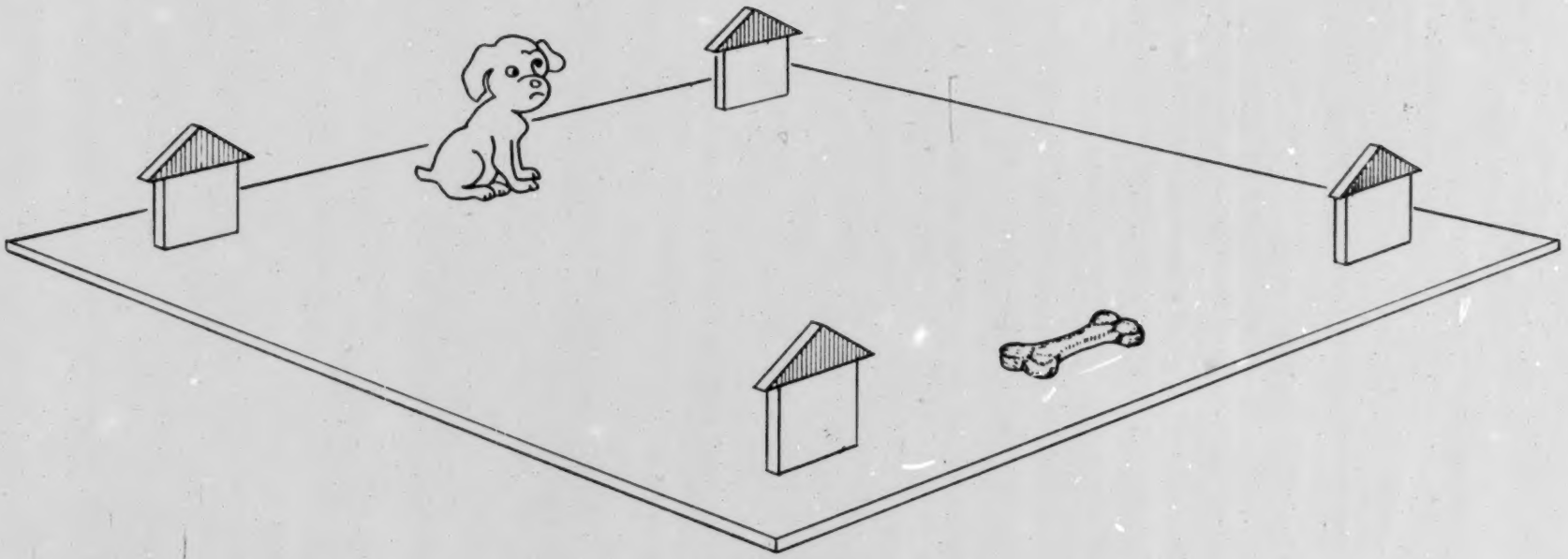
If necessary, clarifying questions (toy or real thing? who person is, etc.) and responses:

Make wrap-up remarks, thanking child, telling him you liked doing these things with him, etc.

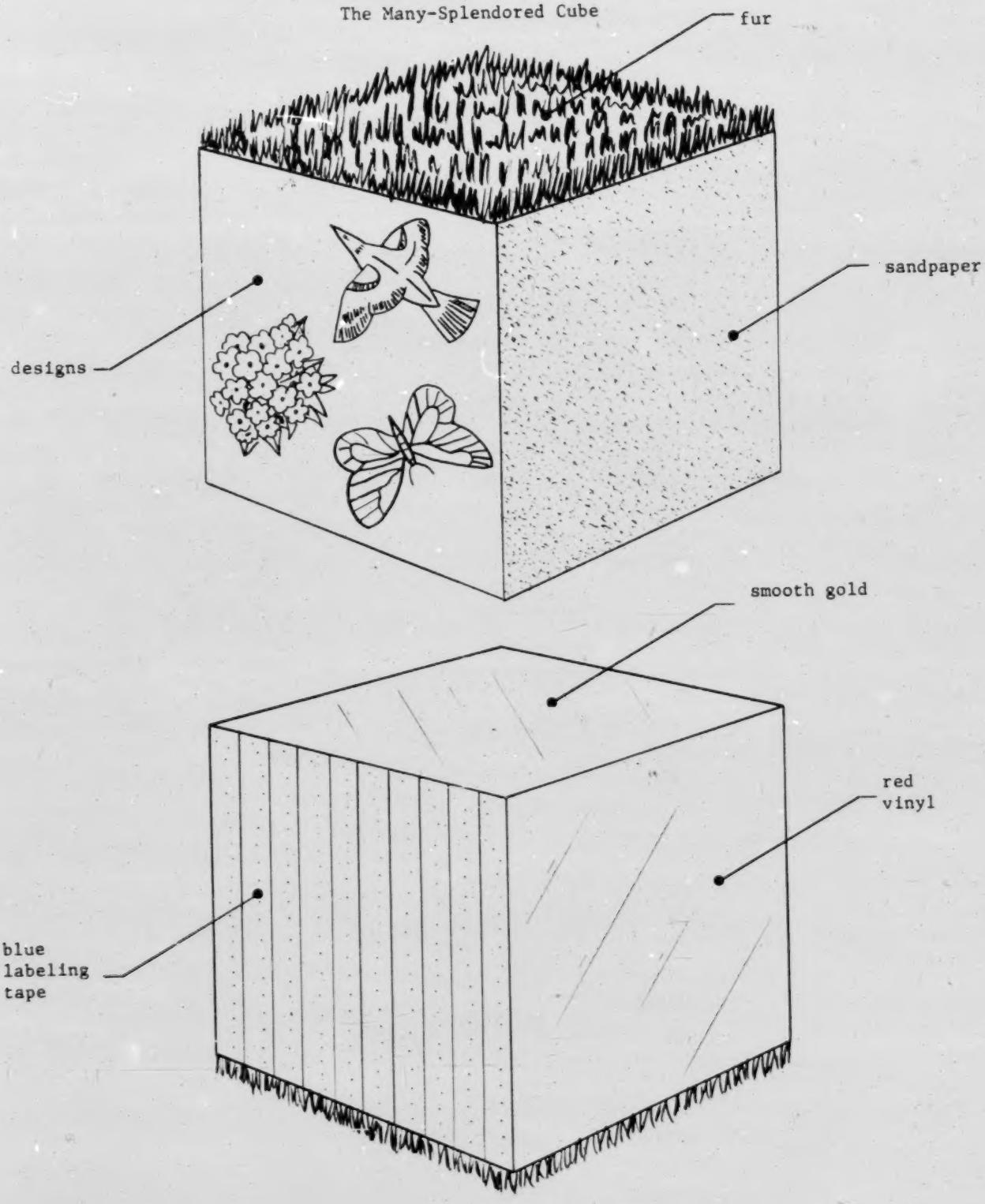
APPENDIX C

ILLUSTRATIONS OF DIRECT ASSESSMENT MATERIALS PRESENTED TO THE CHILD

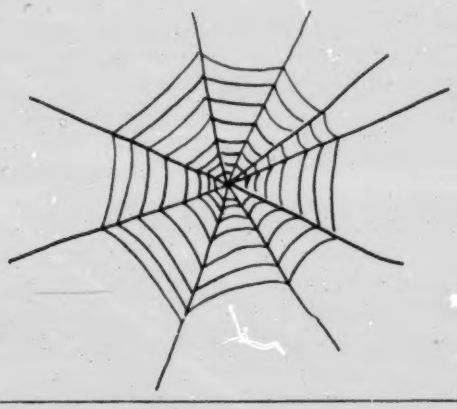
Dog and Bone

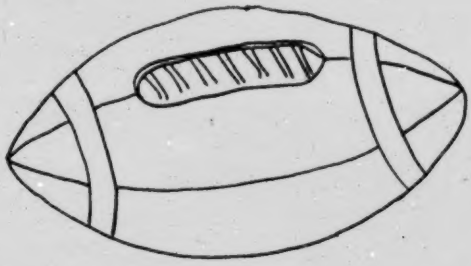


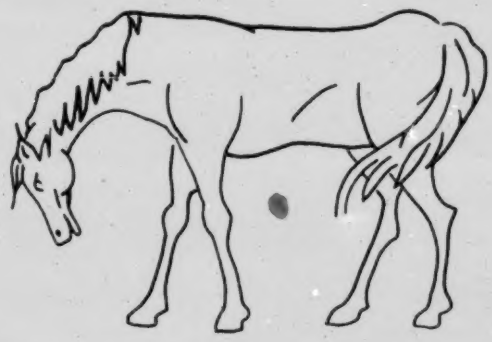
The Many-Splendored Cube



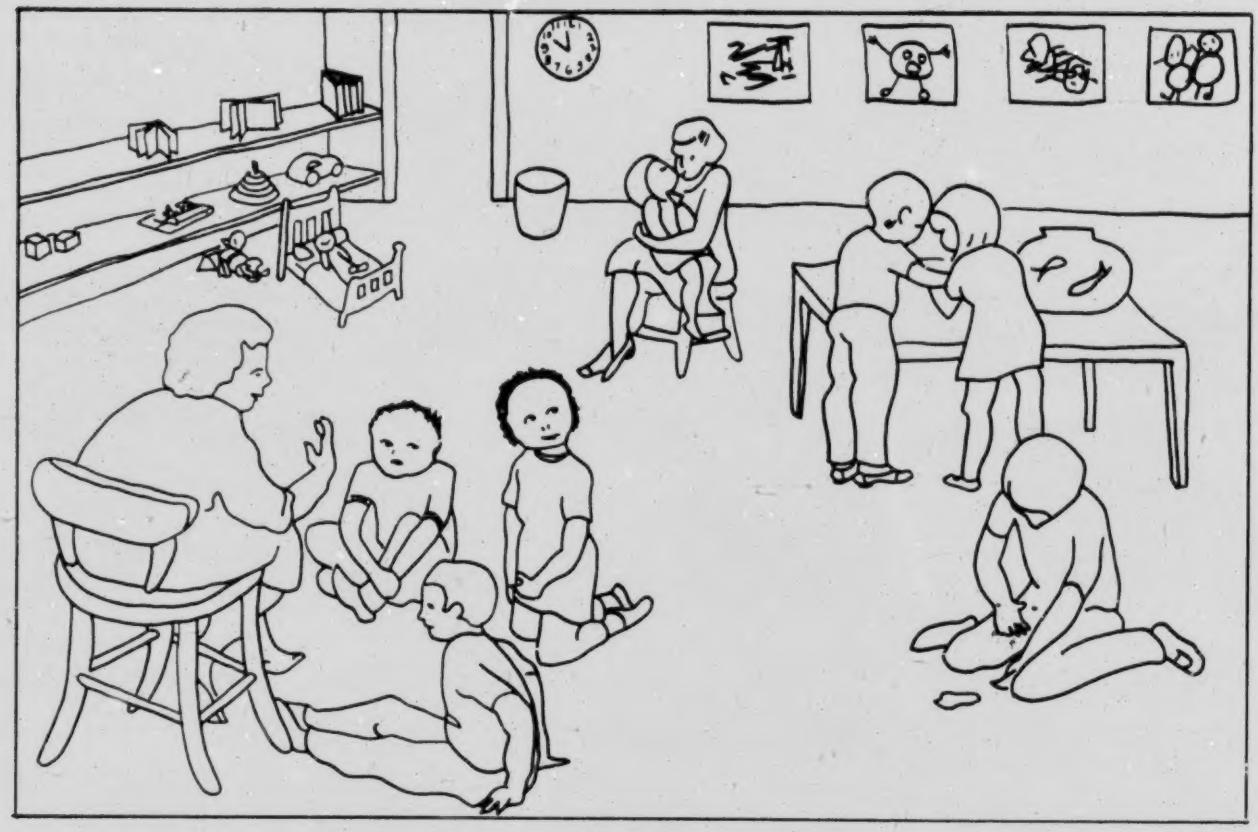
Examples of Items of Picture Naming Task



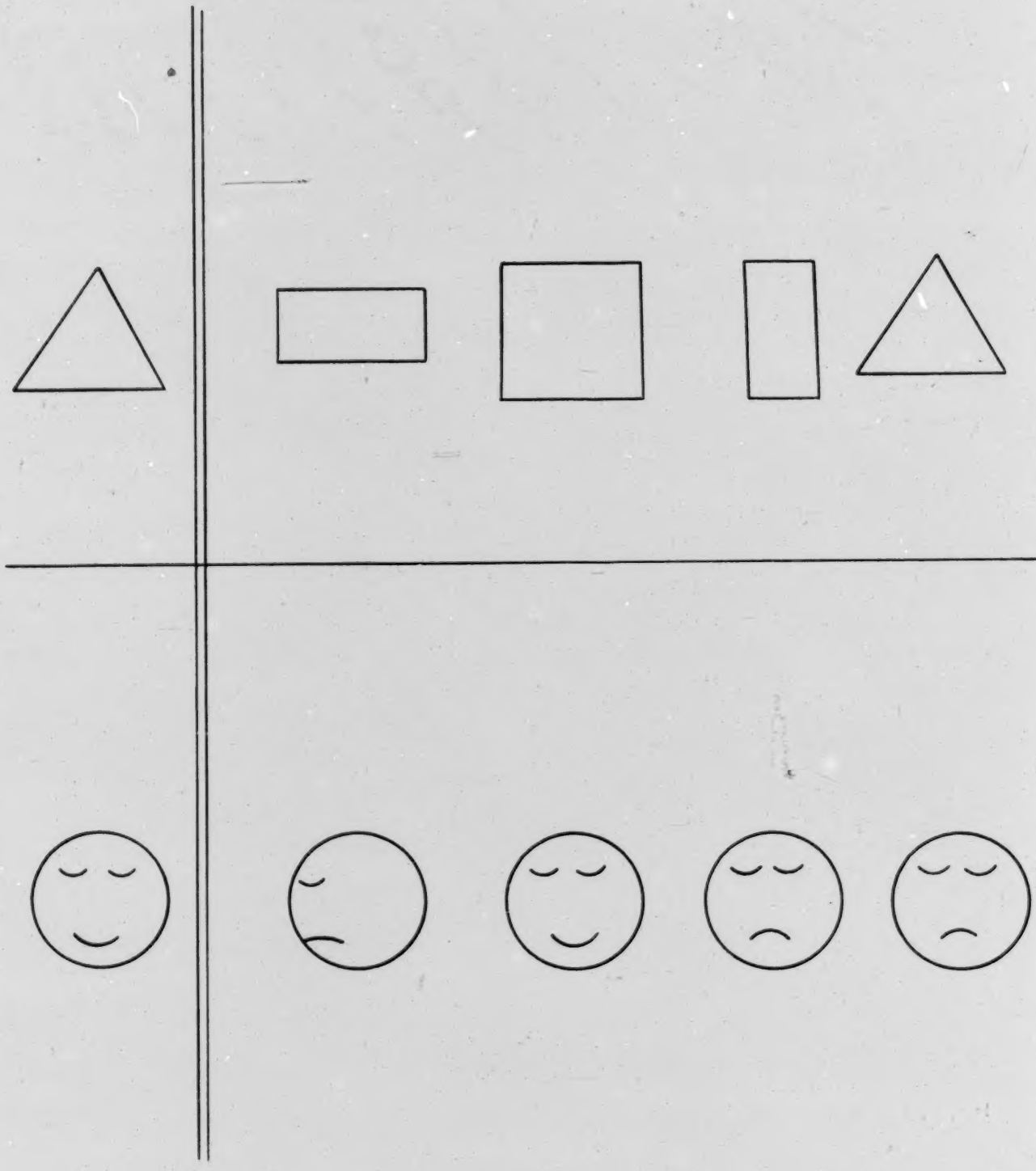




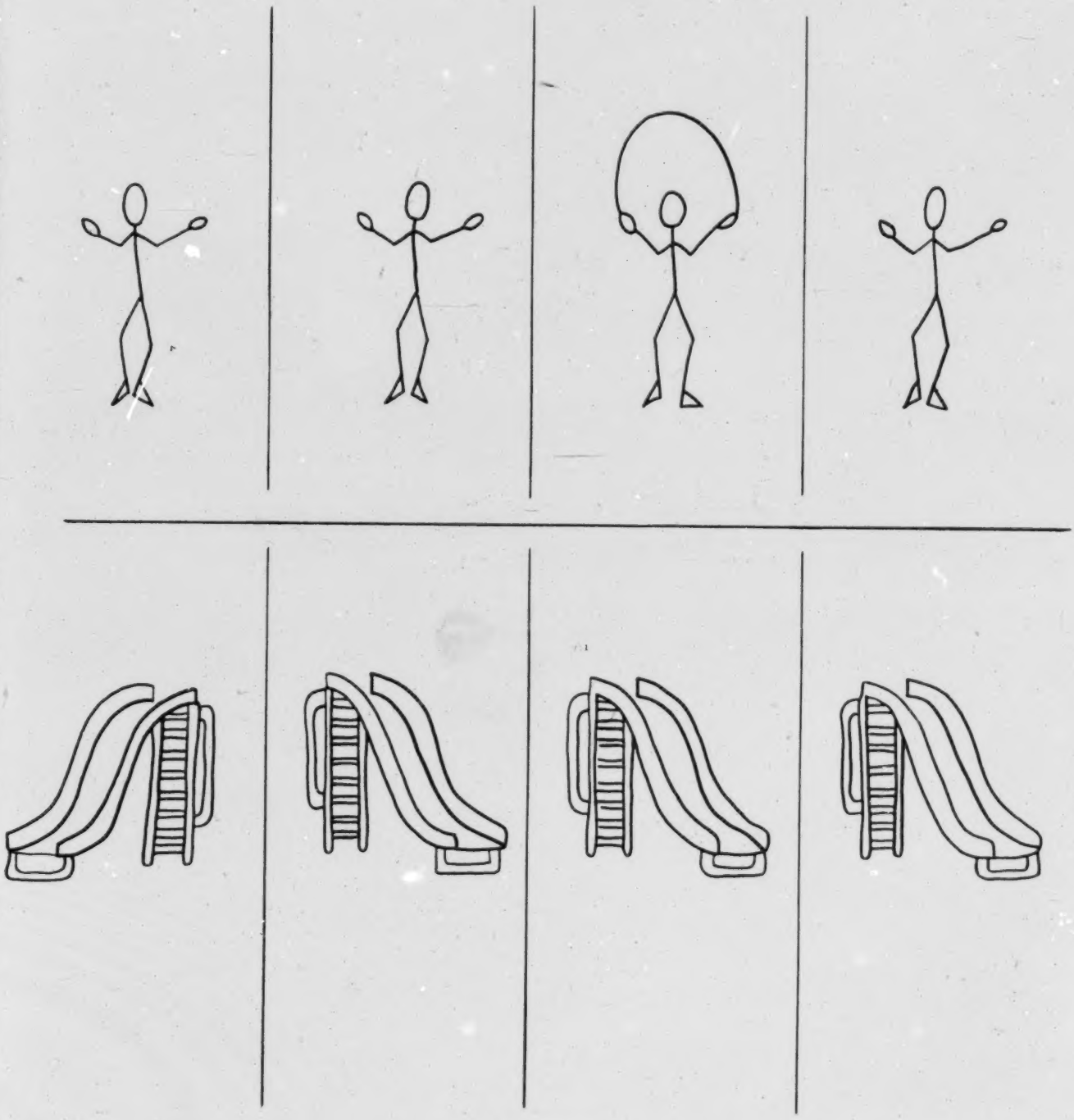
Picture Used in Picture Interpretation Task



Examples of Similarities Items of Visual Discrimination Task



Examples of Differences Items of Visual Discrimination Task



APPENDIX D

RATING SCALES

CHILD RATINGS

From your own personal observation and experience with _____ please circle the number which best describes his (her) behavior.

	Almost Always	Frequently	Sometimes	Almost Never
1. Tries to be with another child or with a group.	4	3	2	1
2. Keeps trying even if something is hard to do.	4	3	2	1
3. Prefers to be by himself; wants to be let alone.	4	3	2	1
4. Gets in a temper if he can't have his way.	4	3	2	1
5. Loses interest and doesn't finish a puzzle, game or painting.	4	3	2	1
6. Is kind and sympathetic to someone who is upset or in trouble.	4	3	2	1
7. Likes to take part in activities with others.	4	3	2	1
8. Works a long time with a form board, puzzle, or other "achievement" toy, trying to complete it or get it right.	4	3	2	1
9. Watches others, but doesn't join in with them.	4	3	2	1
10. Gets impatient and unpleasant if he can't have his way.	4	3	2	1
11. Forgets a job or errand he started, as his mind wanders to other things.	4	3	2	1
12. Tries to make life easier for others; doesn't want to hurt them.	4	3	2	1
13. Enjoys being with others.	4	3	2	1

		Almost Always	Frequently	Sometimes	Almost Never
14.	Pays attention to what he's doing; nothing seems to distract him.	4	3	2	1
15.	Plays by himself rather than with others.	4	3	2	1
16.	Pushes, hits, kicks others.	4	3	2	1
17.	Gets distracted from what he's doing by what others are doing.	4	3	2	1
18.	Is willing to share candy, food or belongings with others.	4	3	2	1
19.	Seeks others out to get them to play with him or join in an activity.	4	3	2	1
20.	Sticks to something he starts until its finished.	4	3	2	1
21.	Goes off by himself when others are gathering to dance or play together.	4	3	2	1
22.	Gets angry when he has to wait his turn or share with others.	4	3	2	1
23.	His attention wanders from what you're telling him.	4	3	2	1
24.	Tries to help when he's asked.	4	3	2	1
25.	Goes up to others and makes friends; doesn't wait for them to come to him.	4	3	2	1
26.	Quietly sticks to what he's doing even when others are making noise or doing things nearby.	4	3	2	1
27.	Tends to withdraw and isolate himself, even when he's supposed to be with a group.	4	3	2	1
28.	Sulks, gets resentful, and won't do things he should.	4	3	2	1

	Almost Always	Frequently	Sometimes	Almost Never
29. Goes from one thing to another; quickly loses interest in things.	4	3	2	1
30. Awaits his turn willingly.	4	3	2	1
31. Follows directions and commands given by teacher.	4	3	2	1
32. Expresses his needs by words or gestures.	4	3	2	1
33. Has a hard time working with a group on a group activity.	4	3	2	1
34. Seems to notice feelings of others.	4	3	2	1
35. Uses imagination in his play.	4	3	2	1
36. Follows rules of behavior set by teacher.	4	3	2	1
37. Speaks soothingly, pats, or otherwise comforts a child who is hurt or unhappy.	4	3	2	1
38. Is curious to find out about things and people and events.	4	3	2	1
39. Tries to overcome obstacles and differences by himself.	4	3	2	1
40. Likes to have help even with easy things.	4	3	2	1

41. Which best describes child's toileting behavior? (Please check)

_____ 1. Does not make needs known
_____ 2. Expresses needs but has occasional accidents
_____ 3. Expresses needs; avoids accidents, but needs some help
_____ 4. Uses toilet without help

42. How does child manage with dressing?

_____ 1. Cannot manage any clothing
_____ 2. Can manage most clothing except zipping and buttoning
_____ 3. Can dress self except for tying shoe
_____ 4. Can dress self completely

43. Can child wash face and hands?

_____1. Cannot wash face and hands
_____2. Can wash hands and face with help
_____3. Can wash face and hands without help

44. What three or four single words best describe this child to you?

_____

_____

_____

_____

Thank you very much for your time and for the observations and information only you can give.

Name _____

EXAMINER OBSERVATIONS

(Circle Appropriate Number)

1.	Came with examiner readily	4	3	2	1	Very resistant to coming with examiner
2.	Friendly and outgoing	4	3	2	1	Reserved, shy
3.	Comfortable throughout testing	4	3	2	1	Ill at ease throughout testing
4.	Cooperative, tries to follow directions	4	3	2	1	Negativistic refusal
5.	Pays close attention	4	3	2	1	Easily distracted
6.	Persistent	4	3	2	1	Gives up easily or can't give up (specify by underlining)
7.	Eager to continue	4	3	2	1	Seeks to terminate
8.	Challenged by hard tasks	4	3	2	1	Prefers only easy tasks
9.	Speed of response very rapid	4	3	2	1	Speed of response very slow
10.	Speech: clear, easy to understand	4	3	2	1	Extremely difficult to understand: mostly unintelligible
11.	Talkative: verbalizes a good deal	4	3	2	1	Taciturn: talks very little
12.	Motor activity: overactive	4	3	2	1	Underactive
13.	Guessing: a great deal	4	3	2	1	Resists guessing

Other Observations and Comments:

APPENDIX E

PERSONNEL DATA AND APPLICATION FORM

* *
* PERSONNEL DATA AND APPLICATION FORM *
* PSYCHOMETRIST *
* *

Pennsylvania Day Care Study
Center for Human Services Development
INSTITUTE FOR THE STUDY OF HUMAN DEVELOPMENT
Amy Gardner House
The Pennsylvania State University
University Park, Pennsylvania 16802

Name: _____ Birth Date: _____ Age: _____ Marital Status: _____

Local Address: _____ Phone: _____

Home Address (if different): _____ Phone: _____

High School Name and City: _____ Year of Graduation: _____

College(s) Attended:	Years:	Degree(s) and Major(s):
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Current academic plans, including credits toward pending degree:

Courses in psychometrics:

Courses in preschool, etc.:

Experience in testing:

Experience with nursery school or day care:

Other experience with young children:

Experience in interviewing adults:

Experience in social work, community development, psychology:

Travel:

Do you have a valid driver's license? Yes _____ No _____

Do you have a car to drive? Yes _____ No _____

Do you have any objections to traveling? Yes _____ No _____

Do you have any geographic preferences for travel (cities or areas you'd like to go to)? Yes _____ No _____

If Yes, please specify:

Please indicate your employment availability:

Available for full-time work over Spring break?

No _____ Yes _____, beginning _____
date

Available for part-time work during Spring term?

No _____ Yes _____, approximately _____ days per week.

APPENDIX F

EXAMINER INSTRUCTIONS TO ACCOMPANY

THE DAY CARE INVENTORY MATERIALS

Pennsylvania Day Care Study

EXAMINER INSTRUCTIONS TO ACCOMPANY THE DAY CARE INVENTORY MATERIALS

General Instructions

Above all, we want your sessions with the child to be a pleasurable experience for the child and for you. Approach administration as a "fun" experience for both of you. Create a relaxed, rewarding atmosphere in which you and the child "play" and work together toward completion of each task. Establish a spirit of enjoyment. Communicate your appreciation of the child's efforts and strengths. Value being with that particular child and doing things with him; let him know it.

Assure your own enjoyment and competence by adding to your existing skill and experience as a psychometrist a complete familiarity with these materials and procedures. We have selected battery items with their appeal for the child strongly in mind. We want to avoid the stiffness and grimness that some test-like situations have. Know your instruments and you will be able to focus your attention on making this a rewarding and enjoyable time.

Materials

There are four components of the Day Care Inventory:

Identifying Information Form
Examiner Observations
Child Ratings
Battery

Identifying Information Form

This information is to be gathered from day care personnel. Only two items of information are essential before working with a child:

a) his name. We do not need the child's last name except for the purpose of identifying all his materials. You need his first name or nickname for rapport.

b) his age. The battery may include some items only for 3's, only for 4's, etc.

The rest of the identifying information should be gathered from the day care person who can best give you the needed information (probably his head teacher) at your mutual convenience before or after you work with the child.

Examiner Observations

Complete this form, similar to the Binet face sheet, for each child at the end of his individual session. Do this when impressions are fresh! In addition to the ratings on this form, we are particularly interested in your own comments in your own words.

Child Ratings

The Child Ratings asks the day care teacher to give us information and impressions on the basis of her experience with the child. Please ask the child's teacher to complete a copy for each child with whom you work (fill in the child's name on the first page beforehand). If there is more than one teacher in a child's room, the head teacher should be asked to complete the form unless another teacher knows the child better.

Familiarize yourself with the rating scales so you can provide help or explanations if needed. Make sure, before you leave a center, that you have received a Child Ratings for each child with whom you have worked.

Battery

The battery consists of 15 short measures. Provided for each measure is a manual page and a record form on which to record the child's responses.

Standard Notation. A few standard abbreviations, with which you may already be familiar, have been used throughout the battery. These are:

E: Examiner
S: Subject (examiner)
Ch: Child
DK: Don't Know--S states he does not know the answer.
NR: No Response--S makes no response to the question/item at all. Not the same as DK and to be treated separately.

Whenever possible, E's questions should be noted on the record form using the notation (Q). Suggested shorthand for frequently used question is:

(Q) more: Tell me more about that.
(Q) why?: Why is that? Why do you think...? etc.
(Q) expl: Please explain/clarify.

Standard Reinforcing Statements. Within and following many measures certain standard reinforcing statements appear on the record form. These statements are to be made as they appear on the form, to every child.

General Reinforcement and Encouragement. The examiner should make reinforcing and supportive remarks of his own according to the needs of the individual child. Generally speaking, the examiner should be liberal with such remarks rather than stingy. Your spontaneous statements of encouragement and your approval of his efforts aid both rapport and performance.

Avoid rewarding a child only when his answers are "right." Do not answer directly a question such as, "Is that right?" We want him to know we are interested in all his answers and care about his effort, not "correctness." We also want him to know that many measures do not have "right" and "wrong" answers. When he senses failure on those which do, respond with "Some are really hard ones" and "No one is expected to get all these hard ones."

Clarification of Ambiguous Responses. Occasionally a child gives a response which seems illogical or inappropriate but which, if clarified, becomes meaningful and entirely appropriate. Try to get the child giving such a response to explain it and note the explanation on the record form. If you find yourself puzzled by a response, ask a question!

Initial Contact With Child

You no doubt already have a number of standard remarks in your repertoire for use when making initial contact with children prior to testing. Feel free to use these remarks. However, in the interest of standardizing procedures to some degree, please include the following statements in your initial contact with the child:

> I am visiting here today because I want to learn more about children your age. I want to talk with you--and to other children here--so I can learn how people your age think about a lot of important things. And I have some things that are fun that we can do.

Some Mechanics

Check materials before testing to be sure to have ready; the test boards and objects, manual and record forms in place, pencils and stapler.

At the end of each testing session remove all record forms for that particular child, staple them together, label them with his name and center, and place them in a pocket in the back of the manual book. Keep his Identifying Information Form and Examiner Observations in the same pocket. (One pocket per child)

At the end of each testing day, make certain all handwriting is clear and readable. Rewrite if necessary. Make certain all scoring is clear and unambiguous.

Collate all materials for each child and staple or clip them together in this order:

Identifying Information Form
Examiner Observations
Battery Record Forms
Child Ratings

APPENDIX G

PARENTAL PERMISSION SLIP

FOR PARENTS

In the next several weeks, staff members of the Pennsylvania Day Care Study will be visiting here to talk with the teachers and children. They are interested in how children learn and feel about their world; they want to meet individually with many children and want to make sure they have the parent's permission.

...they are not giving "tests", (I.Q. or otherwise) to get scores for individual children.

...the names of the children will not be associated with the work of the study. The study is interested in CHILDREN, not particular children by name. No names will be used in any reports.

...children will do things that are designed to be enjoyable and rewarding.

...the study staff will be happy to talk with you, explain their work, and answer any questions.

Please sign here to give your permission for your child.

Bibliography

Ahr, A. E. Screening test for the assignment of remedial treatments. (Examiner's Manual) Skokie, Ill.: Priority Innovations, 1968.

Alexander, T. Adult-child interaction test. In O. G. Johnson & J. W. Bommarito (Eds.), Tests and measurements in child development: A handbook. San Francisco: Jossey-Bass, 1971.

Ali, F., & Costello, J. Modification of the Peabody picture vocabulary test. Developmental Psychology, 1971, 5, 86-91.

Allen, S. A., Dubanoski, R. A., & Stevenson, H. W. Children's performance as a function of race of examiner, race of subject and type of verbal reinforcement. Journal of Experimental Child Psychology, 1966, 4, 248-256.

Ammon, P. R., & Ammon, M. S. Effects of training black preschool children in vocabulary versus sentence construction. Journal Educational Psychology, 1971, 62, 421-426.

Ausubel, D. P., & Sullivan, E. V. Theory and problems of child development. (2nd ed.) New York: Grune and Stratton, 1970.

Baldwin, B. T., & Stecher, L. I. The psychology of the preschool child. New York: D. Appleton, 1924.

Bales, R. F. Task roles & social roles in problem-solving groups. In E. E. Maccoby, T. M. Newcomb, & E. L. Hartley (Eds.), Readings in social psychology, New York: Holt, 1958.

Ballif, B. L., & Adkins, D. C. Gumpgookies: Experimental edition form XII. Honolulu: University of Hawaii, Center for Research in Early Childhood Education, 1968.

Banta, T. J. Tests for the evaluation of early childhood education: The Cincinnati autonomy test battery. In J. Hellmuth (Ed.), Cognitive studies. Vol. I. New York: Bunner/Mazel, 1970.

Barron, F. Creative person and creative process. New York: Holt, Rinehart and Winston, 1969.

Bartlett, B. The relationship between role-taking and self-concept in nursery school children. Unpublished master's thesis, The Pennsylvania State University, 1969.

Becker, W. C., & Krug, R. S. A circumplex model for social behavior in children. Child Development, 1964, 35, 371-396.

Berlyne, D. E. Conflict, arousal and curiosity. New York: McGraw-Hill, 1960.

Bjerstedt, A. The interpretation of sociometric status scores in the classroom. Acta Psychologica, 1956, 12, 1-14.

Blair, J. R., & Ryckman, D. B. Visual discrimination ability among pre-readers. (OE Contract No. OEC 36061784-0508) Ann Arbor: University of Michigan, Center for Research on Language and Language Behavior, 1968. (ERIC Document No. ED 028 033.)

Bogatz, G. A., & Ball, S. The second year of sesame street: A continuing evaluation. Vol. I. Princeton, N. J.: Educational Testing Service, 1971.

Borow, H. Development of occupational motives and roles. In L. W. Hoffman and M. L. Hoffman (Eds.), Review of research in children development. Vol. II. New York: Russell Sage Foundation, 1966.

Brown, B. The assessment of self-concept among four-year-old Negro and white children: A comparative study using the Brown IDS Self-Concept Referents Test. Paper presented at the Eastern Psychological Association Meeting, New York City, April 1966.

Bucky, S. F. The interaction between Negro and white preschool children and Negro and white experimenters and its effect on tests of motor impulse control, reflectivity, creativity and curiosity. Unpublished doctoral dissertation. University of Cincinnati, 1970.

Butler, A. L., Gotts, E. E., Quisenberry, N. L., & Thompson, R. P. Literature search and development of an evaluation system in early childhood education. III. Part A - Behavioral objectives; Part B - Evaluation instruments. Washington, D. C.: U. S. Department of Health, Education and Welfare, Office of Education, 1971.

Carpenter, T. R., & Busse, T. V. Development of self-concept in Negro and white welfare children. Child Development, 1969, 40, 935-939.

Cofer, C. N., & Appley, M. H. Motivation: Theory and research. New York: John Wiley, 1964.

Cohen, J. The factorial structure of the WISC at ages 7-1/2, 10-1/2, and 13-1/2. Journal of Consulting Psychology, 1959, 23, 285-299.

Dailey, J. T. Language facility test. Alexandria, Va.: Abington Corporation, 1965.

Damjan, M., & Makarovic, J. Development of child's conception of vocations from the first to the eighth grade of elementary school: I. Psychological Abstracts, 1968, 43, 1483. (a)

Damjan, M., & Makarovic, J. Development of child's conception of vocations from the first to the eighth grade of elementary school: II. Psychological Abstracts, 1968, 43, 1483-1484. (b)

Deutsch, F. Cognitive and social determinants of female preschoolers' empathic ability, helping, and sharing behavior. Unpublished doctoral dissertation. The Pennsylvania State University, 1972.

Doll, E. A. The measurement of social competence: A manual for the Vineland social maturity scale. Minneapolis, Minn.: Educational Test Bureau, 1953.

Doll, E. A. Condensed manual of directions for the Vineland social maturity scale. (1965 ed.) Circle Pines, Minn.: American Guidance Service, 1965.

Doll, E. A. Preschool attainment record: Manual. (Research ed.) Circle Pines, Minn.: American Guidance Service, 1966.

Dreyer, A. S., & Haupt, D. Self-evaluation in young children. Journal of Genetic Psychology, 1966, 108, 185-197.

Dubin, R., & Dubin, E. R. Children's social perceptions: A review of research. Child Development, 1965, 36, 809-838.

Dunn, L. M. Peabody picture vocabulary test. Circle Pines, Minn.: American Guidance Service, 1959.

Dunn, L. M. Peabody picture vocabulary test. Circle Pines, Minn.: American Guidance Service, 1965.

Earnhart, C. B., Graham, F. K., Eichman, P. L., Marshall, J. M., & Thurston, D. Brain injury in the preschool child: Some developmental considerations: II. Comparison of brain injured and normal children. Psychological Monographs, 1963, 77, (11, Whole No. 574).

Edwards, A. L. The social desirability variable in personality assessment and research. New York: Dryden, 1957.

Emmerich, W. Structure and development of personal-social behaviors in preschool settings. Princeton, N. J.: Educational Testing Service, 1971.

Engel, M. School TAT. In O. G. Johnson & J. W. Bommarito (Eds.) Tests and measurements in child development: A handbook. San Francisco: Jossey-Bass, 1971.

Engel, M., & Raine, W. J. A method for the measurement of the self-concept of children in the third grade. Journal of Genetic Psychology, 1963, 102, 125-137.

English, H. B., & English, A. C. A comprehensive dictionary of psychological and psychoanalytic terms. New York: Longmans, Green, 1958.

Erikson, E. H. Childhood and society. New York: Norton, 1950.

ETS-OEO Longitudinal Study. Disadvantaged children and their first school experiences. Princeton, N. J.: Educational Testing Service, 1968.

Fellows, B. J. The discrimination process and development. London: Pergamon Press, 1968.

Finch, H. M. Young children's concepts of parents' roles. Journal of Home Economics, 1955, 47, 99-103.

Frankenberg, W. K., Dodds, J. B., & Fandal, A. W. Denver developmental screening test. Manual (Revised). Denver: University of Colorado Medical Center, 1970.

French, J. L. Pictorial test of intelligence. New York: Houghton Mifflin, 1964.

Galler, E. H. Influence of social class on children's choices of occupation. Elementary School Journal, 1951, 51, 439-445.

Getzels, J. W., & Jackson, P. W. Creativity and intelligence. New York: John Wiley, 1962.

Gibson, E. J. Perceptual development. In H. W. Stevenson (Ed.). Child psychology. (62nd yearbook of the National Society for the Study of Education) Chicago: University of Chicago Press, 1963.

Gibson, E. J., Gibson, J. J., Pick, A., & Osser, H. A developmental study of the discrimination of letter-like forms. Journal of Comparative and Physiological Psychology, 1962, 55 (6), 897-906.

Ginzberg, E., Ginsburg, S. W., Axelrad, S., & Herma, J. L. Occupational choice. New York: Columbia University Press, 1951.

Gish, D. J. An evaluation model for early childhood education. First draft of unpublished doctoral dissertation, The Pennsylvania State University, 1971.

Gladwin, T. Social competence and clinical practice. Psychiatry, 1967, 30, 30-43.

Goldfried, M. R., & D'Zurilla, T. J. A behavioral-analytic model for assessing competence. In C. D. Spielberger (Ed.), Current topics in clinical and community psychology. Vol. 1. New York: Academic Press, 1969.

Goldman, A. E. A comparative developmental approach to schizophrenia. Psychological Bulletin, 1962, 59 (1), 57-69.

Goldman, R. J. The Minnesota tests of creative thinking. In R. L. Mooney & T. A. Razik (Eds.), Explorations in creativity. New York: Harper and Row, 1967.

Goodenough, F. L., Maurer, K. M., & Van Wagenen, M. J. Minnesota preschool scale. (Manual) Minneapolis, Minn.: Educational Publishers, 1940.

Graham, F., Berman, P. W., & Ernhart, C. B. Development in preschool children of the ability to copy forms. Child Development, 1960, 31, 339-359.

Graham, F. K., Ernhart, C. B., Craft, M., & Berman, P. W. Brain injury in the preschool child: Some developmental considerations. I. Performance of normal children. Psychological Monographs, 1963, 77, (10, Whole No. 573).

Gray, S. The wishes of Negro school children. Journal of Genetic Psychology, 1944, 64, 225-237.

Guilford, J. P. Creativity. American Psychologist, 1950, 5, 444-454.

Guilford, J. P. The structure of intellect. Psychological Bulletin, 1956, 53, 267-293.

Guilford, J. P. A system of psychomotor abilities. American Journal of Psychology, 1958, 71, 146-147.

Guilford, J. P., Merrifield, P. R., & Cox, A. B. Creative thinking in children at the junior high school levels. (Report No. 26) Los Angeles: University of Southern California, Psychological Laboratory, 1961.

Gutteridge, M. V. A study of motor achievements of young children. Archives of Psychology, 1939, No. 244.

Haber, R. N. (Ed.). Current research in motivation. New York: Holt, Rinehart & Winston, 1966.

Hall, V., & Caldwell, E. Analysis of young subjects' performance on a matching test. Syracuse, N. Y.: Syracuse University, Center for Research & Development in Early Childhood Education, 1970.

Harlow, H. F., Blazek, N. C., & McClearn, G. E. Manipulatory motivation in the infant rhesus monkey. Journal of Comparative and Physiological Psychology, 1956, 49, 444-448.

Harris, D. B. Children's drawings as measures of intellectual maturity. New York: Harcourt, Brace, and World, 1963.

Hartley, R. E. Children's concepts of male and female roles. Merrill-Palmer Quarterly Journal of Behavior and Development, 1960, 6, 83-91.

Hartman, D. The hurdle jump as a measure of the motor proficiency of young children. Child Development, 1943, 14 (4), 201-211.

Hess, R. D., Kramer, R., Slaughter, D., Torney, J., Berry, C., & Hull, E. Techniques for assessing cognitive and social abilities of children and parents in project Head Start. (OEO Report No. 519). Chicago, Ill.: University of Chicago, 1966. (ERIC Document No. ED 015 772.)

Hurlock, E. B. Child development. (4th. ed.) New York: McGraw-Hill, 1964.

Ireton, H., & Thwing, E. The child development inventory: For the description of the development of preschool children. Proceedings of the 79th Annual Convention of the American Psychological Association, 1971.

Irwin, O. C. A comparison of the vocabulary of use and of understanding by mentally retarded children. Cerebral Palsy Journal, 1966, 27 (6), 8-10. (a)

Irwin, O. C. A comparison of the vocabulary of use and of understanding of cerebral palsied children. Cerebral Palsy Journal, 1966, 27 (3), 7-11. (b)

Jersild, A. T., Markey, F. V., & Jersild, C. L. Children's fears, dreams, wishes, daydreams, likes, dislikes, pleasant and unpleasant memories. Child Development Monographs, 1933, No. 12.

Jersild, A. T., & Tasch, R. J. Children's interests. New York: Teachers College Contributions to Education, 1949.

Jeruchimowicz, R., Costello, J., & Bagur, J. S. Knowledge of action and object words: A comparison of lower- and middle-class Negro preschoolers. Child Development, 1971, 42, 455-464.

Joesting, J., & Joesting, R. Correlation of scores on the picture interpretation test and Stanford-Binet form L-M IQS. Psychological Reports, 1971, 28, 906. (a)

Joesting, J., & Joesting, R. The picture interpretation test and its relationship to the Stanford-Binet. Psychological Reports, 1971, 29, 1146. (b)

Jourard, S. M. The transparent self. Princeton, N. J.: Van Nostrand, 1964.

Jourard, S. M. Disclosing man to himself. Princeton, N. J.: Van Nostrand, 1968.

Kagan, J., & Lemkin, J. The child's differential perception of parental attributes. Journal of Abnormal and Social Psychology, 1960, 61, 440-447.

Katz, P. A., & Deutsch, M. The relationship of auditory and visual functioning to reading achievement in disadvantaged children. In M. Deutsch (Ed.) The disadvantaged child: Selected papers of Martin Deutsch and Associates. New York: Basic Books, 1967.

Kelly, G. A. The psychology of personal constructs. New York: Norton, 1955. 2 vols.

Keogh, B. K., & Smith, C. E. Visuo-motor ability for school prediction. A seven-year-study. Perceptual and Motor Skills, 1967, 25, 101-110.

Langford, E. P. The sex role of the female as perceived by Anglo and Negro children. Dissertation Abstracts, 1970, 30, 4669.

Law, N., Moffitt, M., Moore, E., Overfield, R., & Starks, E. Basic propositions for early childhood education. Membership Service Bulletin I. Washington, D. C.: Association for Childhood Education International, 1965.

Levine, S., Elzey, F. F., & Lewis, M. California preschool social competency scale manual. Palo Alto, Calif.: Consulting Psychologists Press, 1969.

Loban, W. The language of elementary school children. (Research Report No. 1) Champaigne, Ill.: National Council of Teachers of English, 1963.

Maccoby, E. E. Class differences in boys choices of authority roles. Sociometry, 1962, 25, 117-119.

MacKinnon, D. W. The nature and nuture of creative talent. American Psychologist, 1962, 17, 484-495.

McCarthy, D. The language development of the preschool child. Minneapolis, Minn.: University of Minnesota Press, 1930.

Meili-Dvoretzki, G. The Development of perception in the Rorschach. In B. Klopfer (Ed.), Development in the Rorschach technique. New York: Harcourt, Brace, and World, 1956.

Minuchin, P. Processes of curiosity and exploration in preschool disadvantaged children. (Final Report, OEO-2403) Washington, D. C.: Office of Economic Opportunity, 1968.

Minuchin, P. Correlates of curiosity and exploratory behavior in preschool disadvantaged children. Child Development, 1971, 42, 939-949.

Montgomery, K. C. Exploratory behavior as a function of "similarity" of stimulus situations. Journal of Comparative and Physiological Psychology, 1953, 46, 129-133.

Mooseheart Laboratory for Child Research. Mooseheart wishes and fears inventory. Moosehart, Ill.: Child Guidance Clinic, no date.

Mott, S. J. Concept of mother: A study of four- and five-year-old children. Child Development, 1954, 25, 99-106.

Mussen, P. H., Conger, J. J., & Kagan, J. Child development and personality. (3rd ed.) New York: Harper and Row, 1969.

Nice, M. M. Length of sentences as a criterion of a child's progress in speech. Journal of Educational Psychology, 1925, 16, 370-379.

O'Hara, R. P. The roots of a career. Elementary School Journal, 1962, 62, 277-280.

Osgood, C. E., Suci, C. J., & Tannenbaum, P. H. The measurement of meaning. Urbana, Ill.: University of Illinois Press, 1957.

Owens, E. P., & Bowling, D. H. Internal consistency and factor structure of the preschool attainment record. American Journal of Mental Deficiency, 1970, 75 (2), 170-171.

Ozehosky, R. J., & Clark, E. T. Verbal and non-verbal measures of self-concept among kindergarten boys and girls. Psychological Reports, 1971, 28, 195-199.

Peters, D. L., Hendrickson, J., Marcus, R., & Ridley, P. Defining day care goals: A preliminary study. The Pennsylvania Day Care Study Technical Report No. 5. University Park, Pa.: The Pennsylvania State University, College of Human Development, Institute for the Study of Human Development, 1972.

Peters, D. L., & Stein, N. Project head start - Summer 1966: An evaluational report. San Mateo, Calif.: San Mateo Human Resources Commission, 1966.

Phillips, L., & Cowitz, B. Social attainment and reactions to stress. Journal of Personality, 1953, 22, 270-283.

Piers, E. V., & Harris, D. B. Age and other correlates of self-concepts in children. Journal of Educational Psychology, 1964, 55, 91-95.

Piwowar, E. M. Preschoolers' responses to questions concerning parental roles while enrolled in a 1965 Headstart program of a settlement house. Child Study Center Bulletin (State University College at Buffalo), 1966, 2, 110-115.

Polansky, N., Lippitt, R., & Redl, F. An investigation of behavior contagion in groups. Human Relations, 1950, 3, 319-348.

Rarick, G. L., & McKee, R. A study of twenty third-grade children exhibiting extreme levels of achievement on tests of motor proficiency. Research Quarterly of the American Association for Health, Physical Education and Recreation, 1949, 20, 142-152.

Reynell, J., & Huntley, R. M. C. New scales for the assessment of language development in young children. Journal of Learning Disabilities, 1971, 4, 549-557.

Ridley, P. R. A method for visual discrimination training for four-year-olds. Unpublished master's paper, The Pennsylvania State University, 1970.

Rosenberg, L. A., Rosenberg, A. M., & Stroud, M. The John Hopkins perceptual test. The development of a rapid intelligence test for the preschool child. Paper presented at the annual meeting of the Eastern Psychological Association, New York, 1966.

Sattler, J. M. Racial "experimenter effects" in experimentation, testing, interviewing and psychotherapy. Psychological Bulletin, 1970, 73, 137-160.

Sattler, J. M., & Theye, F. Procedural situational, and interpersonal variables in individual intelligence testing. Psychological Bulletin, 1967, 68, 347-360.

Schaefer, E. S., & Aaronson, M. Day care behavior inventory. Unpublished rating scale. Rockville, Md.: National Institute of Mental Health, Department of Health, Education and Welfare, no date.

Shipman, V. Disadvantaged children and their first school experiences. ETS-Head Start Longitudinal Study. Vol. I. Preliminary description of the initial sample prior to school enrollment. Princeton, N. J.: Educational Testing Service, 1970.

Sigel, I. E. The attainment of concepts. In M. L. Hoffman & L. W. Hoffman (Eds.). Review of child development research. New York: Russell Sage Foundation, 1964.

Slasson, R. L. Slasson intelligence test (SIT) for children and adults. (1963 ed.) New York: Slasson Educational Publications, 1963.

Smith, J. A. Setting conditions for creative teaching in the elementary school. Boston: Allyn and Bacon, 1966.

Smith, M. E. An investigation of the development of the sentence and the extent of vocabulary in young children. University of Iowa, Studies in Child Welfare. 1926, 3 (Whole No. 5)

Smith, M. E. A study of some factors influencing the development of the sentence in preschool children. Journal of Genetic Psychology, 1935, 46, 182-212.

Soares, A. T., & Soares, L. M. Self-perceptions of culturally disadvantaged children. American Educational Research Journal, 1969, 6, 31-45.

Sparling, J. J., & Gallagher, J. J. Research directions for the 70's. (Report submitted to NICHHD, Office of Education) Chapel Hill, North Carolina: Frank Porter Graham Child Development Center, 1971.

Speer, G. S. Oral and written wishes of rural and city school children. Child Development, 1939, 10, 151-155.

Starkweather, E. K. Problems in the measurement of creativity in preschool children. Journal of Educational Measurement, 1964, 1, 109-113.

Stein, M. I. Creativity. In E. F. Borgatta & W. W. Lambert (Eds.). Handbook of personality theory and research. Chicago: Rand McNally, 1968.

Super, D. E. Career development. In J. E. Davitz and S. Ball (Eds.), Psychology of the educational process. New York: McGraw-Hill, 1970.

Terman, L. M., & Merrill, M. A. Measuring intelligence. Boston: Houghton Mifflin, 1937.

Terman, L. M., & Merrill, M. A. Stanford-Binet intelligence scale. (Manual, Form L-M) Boston: Houghton Mifflin, 1960.

Thomas, W. L. The Thomas self-concept values test. Grand Rapids, Mich.: Educational Service, 1969.

Thorndike, E. L., & Lorge, I. The teacher's word book of 30,000 words. New York: Columbia University, Teachers College, 1944.

Torrance, E. P. Torrance tests of creative thinking: Norms-technical manual. (Rev. ed.) Princeton, N. J.: Personnel Press, 1966.

Tyler, L. E. The antecedents of two varieties of vocational interests. Genetic Psychology Monographs, 1964, 70, 177-227.

Vondracek, S. I. The relationship between creativity and certain non-intellectual attributes in a high aptitude population. Unpublished master's thesis, The Pennsylvania State University, 1965.

Walker, R. N. Some temperament traits in children as viewed by their peers, their teachers, and themselves. Monographs of the Society for Research in Child Development, 1967, 32 (Serial No. 114).

Walker, W. Development of a readiness test for disadvantaged preschool children in the U. S. (OE Grant No. OEG 690090170059 [010]). Maryville, Missouri, Northwest Missouri State College, 1969. (ERIC Document No. ED 037 253.)

Wallach, M. A., & Kogan, N. Modes of thinking in young children: A study of the creativity-intelligence distinction. New York: Holt, Rinehart and Winston, 1965.

Wechsler, D. Manual for the Wechsler intelligence scale for children. New York: Psychological Corporation, 1949.

Wechsler, D. Wechsler adult intelligence scale manual. New York: Psychological Corporation, 1955.

Wechsler, D. The measurement and appraisal of adult intelligence. (4th ed.) Baltimore: Williams and Wilkins, 1958.

Wechsler, D. Manual for the Wechsler preschool and primary scale of intelligence. New York: Psychological Corporation, 1963.

Wenar, C. The effects of motor handicap on personality: 1. The effects on level of aspiration. Child Development, 1953, 24, 123-130.

Werner, H., & Kaplan, B. Symbol formation. New York: John Wiley and Sons, 1963.

Wheelock, W. H., & Silvaroli, N. J. An investigation of visual discrimination training for beginning readers. Journal of Typographic Research, 1967, 1, 147-156.

White, R. W. Competence and psychosexual stages of development. In M. H. Jones (Ed.), Nebraska Symposium on Motivation. Lincoln, Neb.: University of Nebraska Press, 1960.

Williams, H. M., & McFarland, M. L. A revision of the Smith vocabulary test for preschool children. Part III. Development of language and vocabulary in young children. University of Iowa, Studies in Child Welfare, 1937, 13 (Whole No. 2).

Wilson, R. C., Guilford, J. P., Christensen, P. R., & Lewis, D. J. A factor-analytic study of creative thinking abilities. Psychometrika, 1954, 19, 297-311.

Winker, J. B. Age trends and sex differences in the wishes, identifications, activities and fears of children. Child Development, 1949, 20, 191-200.

Wittenborn, J. R. A study of adoptive children: I. Interviews as a source of scores for children and their homes. Psychological Monographs, 1956, 70 (Whole No. 408).

Witty, P., & Kopel, D. The dreams and wishes of elementary school children. Journal of Applied Psychology, 1939, 30, 199-205.

Wodtke, K. H. Some data on the reliability and validity of creativity tests at the elementary school level. Educational and Psychological Measurement, 1964, 24, 399-408.

Wohlwill, J. F. Developmental studies of perception. Psychological Bulletin, 1960, 57, 249-288.

Wohlwill, J. F., & Wiener, M. Discrimination of form in young children. Child Development, 1964, 35, 1113-1125.

Woolner, R. B. Pre-school self-concept picture test manual. Memphis, Tenn.: RKA Publishing, 1966.

Wylie, R. C. The present status of self theory. In E. F. Borgatta and W. W. Lambert (Eds.), Handbook of personality theory and research. Chicago: Rand McNally, 1968.

Yamamoto, K. A study of the relationships between creative thinking abilities of fifth grade teachers and academic achievement. Unpublished doctoral dissertation, University of Michigan, 1962. (Cited in R. L. Mooney & T. A. Razik (Eds.), Explorations in creativity. New York: Harper and Row, 1967.)

Yamamoto, K. Validation of tests of creative thinking: A review of some studies. Exceptional Children, 1965, 31, 281-290.

Zeligs, R. Children's wishes. Journal of Applied Psychology, 1942, 26, 231-240.

Zimmerman, I. L., Steiner, V. G., & Evatt, R. L. Preschool language manual. Columbus, Ohio: Charles E. Mirrell, 1969.